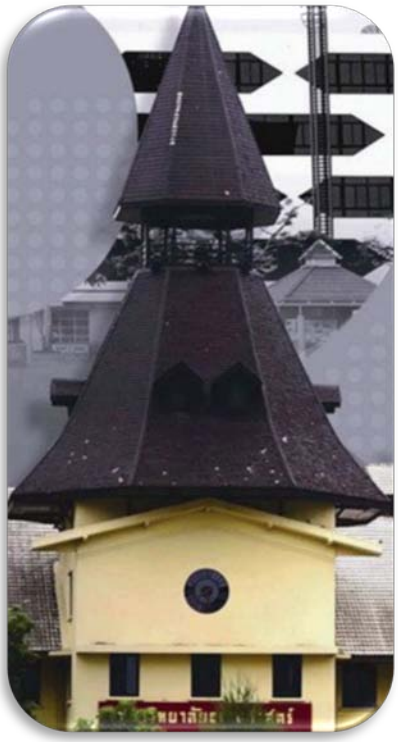
Thammasat University
Faculty of Economics
Bachelor of Economics (International Program)

AC201
Fundamental Accounting

Semester 1/2015



Course Package OY 01

Topic:

Reporting and Interpreting
Property, Plant, and Equipment;
Intangibles; and Natural Resources

Session:

Session OY 01

Instructor:

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REPORTING AND INTERPRETING PROPERTY, PLANT, AND EQUIPMENT; INTANGIBLES; AND NATURAL RESOURCES

Chapter Take-Aways

1. **Define, classify, and explain the nature of long-lived productive assets and interpret the fixed asset turnover ratio.**
   a. Productive assets are those that a business retains for long periods of time for use in the course of normal operations rather than for sale. They may be divided into tangible assets (land, buildings, equipment, natural resources) and intangible assets (including goodwill, patents, and franchises).
   b. The cost allocation method utilized affects the amount of net property, plant, and equipment that is used in the computation of the fixed asset turnover ratio. Accelerated methods reduce book value and increase the turnover ratio.
2. **Apply the cost principle to measure the acquisition and maintenance of property, plant, and equipment.**
   The acquisition cost of property, plant, and equipment is the cash-equivalent purchase price plus all reasonable and necessary expenditures made to acquire and prepare the asset for its intended use. These assets may be acquired using cash, debt, stock, or through self-construction. Expenditures made after the asset is in use are either additions and improvements or ordinary repairs:
   a. **Ordinary repairs and maintenance** provide benefits during the current accounting period only. Amounts are debited to appropriate current expense accounts when the expenses are incurred.
   b. **Improvements** provide benefits for one or more accounting periods beyond the current period. Amounts are debited to the appropriate asset accounts (they are capitalized) and depreciated, depleted, or amortized over their useful lives.
3. **Apply various cost allocation methods as assets are held and used over time.**
   Cost allocation methods: In conformity with the expense matching principle, cost (less any estimated residual value) is allocated to periodic expense over the periods benefited. Because of depreciation, the net book value of an asset declines over time and net income is reduced by the amount of the expense. Common depreciation methods include straight-line (a constant amount over time), units-of-production (a variable amount over time), and double-declining-balance (a decreasing amount over time).
   a. Depreciation—buildings and equipment.
   b. Depletion—natural resources.
   c. Amortization— intangibles.
4. **Explain the effect of asset impairment on the financial statements.**
   When events or changes in circumstances reduce the estimated future cash flows of long-lived assets below their book value, the book values should be written down (by recording a loss) to the fair value of the assets.
5. **Analyze the disposal of property, plant, and equipment.**
   When assets are disposed of through sale or abandonment,
   a. Record additional depreciation since the last adjustment was made.
   b. Remove the cost of the old asset and its related accumulated depreciation, depletion, or amortization.
   c. Recognize the cash proceeds.
   d. Recognize any gains or losses when the asset's net book value is not equal to the cash received.

6. **Apply measurement and reporting concepts for intangible assets and natural resources.**
   The cost principle should be applied in recording the acquisition of intangible assets and natural resources. Intangibles with definite useful lives are amortized using the straight-line method. Intangibles with indefinite useful lives, including goodwill, are not amortized, but are reviewed at least annually for impairment. Report intangibles at net book value on the balance sheet. Natural resources should be depleted (usually by the units-of-production method) usually with the amount of the depletion expense capitalized to an inventory account.
7. **Explain how the acquisition, use, and disposal or long-lived assets impact cash flows.**
   Depreciation expense is a noncash expense that has no effect on cash. It is added back to net income on the statement of cash flows to determine cash from operations. Acquiring and disposing of long-lived assets are investing activities.

Key Ratio

The **fixed asset turnover ratio** measures how efficiently a company utilizes its investment in property, plant, and equipment over time. Its ratio can be compared to competitors' ratios. The fixed asset turnover ratio is computed as follows:

Fixed Asset Turnover = Net Sales (or Operating Revenues) ÷ Average Net Fixed Assets

Finding Financial Information

Balance Sheet
Under Noncurrent Assets
Property, plant, and equipment (net of accumulated depreciation)
Natural resources (net of accumulated depletion)
Intangibles (net of accumulated amortization, if any)

Income Statement
Under Operating Expenses
Depreciation, depletion, and amortization expense **or** included in
Selling, general, and administrative expenses and
Cost of goods sold (with amount of depreciation expense disclosed in a note)

Statement of Cash Flows
Under Operating Activities (indirect method)
Net income
+ Depreciation and amortization expense
– Gains on sales of assets
+ Losses on sales of assets
Under Investing Activities
+ Sales of assets for cash
– Purchases of assets for cash

Notes
Under Summary of Significant Accounting Policies
Description of management's choice for depreciation and amortization methods, including useful lives, and the amount of annual depreciation expense, if not listed on the income statement.
Under a Separate Footnote
If not specified on the balance sheet, a listing of the major classifications of long-lived assets at cost and the balance in accumulated depreciation, depletion, and amortization.

Chapter Outline	Notes
LO 1 – Define, classify, and explain the nature of long-lived productive assets and interpret the fixed asset turnover ratio.	
I. Acquisition and Maintenance of Plant and Equipment A. Classifying Long-Lived Assets 1. Long-lived assets – Tangible and intangible resources owned by a business and used in its operations over several years 2. Tangible assets – Long-lived assets with physical substance a. Land used in operations b. Buildings, fixtures, and equipment used in operations c. Natural resources used in operations 3. Intangible assets – long-lived assets without physical substance that confer specific rights on their owner B. Key Ratio Analysis: Fixed Asset Turnover Ratio 1. Fixed Asset Turnover Ratio = Net Sales (or Operating Revenues) ÷ Average Net Fixed Assets 2. Average Net Fixed Assets = [Beginning + Ending Fixed Asset balance (net of accumulated depreciation) ÷ 2 3. Ratio measures the sales dollars generated by each dollar of fixed assets used 4. A high rate normally suggests effective management; an increasing rate signals more efficient fixed asset use 5. A lower or declining fixed asset turnover rate may indicate that a company is expanding (by acquiring additional productive assets) in anticipation of higher future sales. 6. An increasing ratio could also signal that a firm has cut back on capital expenditures due to a downturn in business.	
LO 2 – Apply the cost principle to measure the acquisition and maintenance of property, plant, and equipment.	
C. Measuring and Recording Acquisition Cost 1. Cost principle requires that all reasonable and necessary expenditures made in acquiring and preparing an asset for use should be recorded as the cost of the asset a. Expenditures are capitalized when they are recorded as part of the cost of an asset instead of as expenses in the current period i. Any sales taxes, legal fees, transportation costs, and installation costs are then added to the purchase price of the asset ii. Special discounts are subtracted iii. Any interest charges associated with purchase are expensed as incurred iv. All of the incidental costs of the purchase of land (e.g., title fees, sales commissions, legal fees, title insurance, delinquent taxes, and surveying fees) are included in its cost v. Renovation and repair costs incurred by the company prior to asset's use are included in cost	

b. When purchasing land, building, and equipment as a group, the total cost is allocated to each asset in proportion to the asset's market value relative to the total market value of the assets as a whole

2. For Cash
Assume that Southwest paid $75 million cash for an aircraft with a net cash invoice price of $74 million and $1 million of related transportation and preparation costs
Dr. Flight Equipment (+A) 75 mill
Cr. Cash (–A) 75 mill
Assets = Liabilities + Stockholders' Equity
Flight Equipment (A) + 75 mill + Cash (A) – 75 mill = 0

3. For Debt
Assume instead that Southwest signed a note payable in the amount of $74 million and paid cash for the $1 million of transportation and preparation costs
Dr. Flight Equipment (+A) 75 mill
Cr. Cash (–A) 1 mill
Note Payable (+L) 74 mill
Assets = Liabilities + Stockholders' Equity
Flight Equipment (A) + 75 mill + Cash (A) – 1 mill = Note Payable (L) + 74 mill

4. For Equity (or Other Noncash Considerations)
a. Cash equivalent cost = fair value of the asset given or received
b. Assume that Southwest gave Boeing 1 million shares of its $1 par value common stock with a market value of $50 per share and paid $ 25 million in cash for flight equipment
Dr. Flight Equipment (+A) 75 mill
Cr. Common Stock (+SE) 1 mill
(1 mill shares x $1 par value)
Additional Paid-in Capital (+SE) 49 mill
(1 mill shares x $49 excess)
Cash (–A) 25 mill
Assets = Liabilities + Stockholders' Equity
Flight Equipment (A) + 76 mill + Cash (A) – 25 mill = Common Stock (SE) + 1 mill + Additional Paid-in Capital (SE) + 49 mill

5. By Construction
   a. Cost includes all the necessary costs associated with construction, such as labor, materials, and in most situations, capitalized interest
      i. Capitalized interest – a portion of the interest incurred during the construction period
      ii. Amount of interest expense capitalized is recorded by debiting the asset and crediting cash when the interest is paid
   b. Southwest constructed a new hangar, paying $600,000 in labor costs and $1,300,000 in supplies and materials; Southwest also paid $100,000 in interest expense during the year related to the construction project

      Dr. Building (+A) 2 mill
      Cr. Cash (–A) 2 mill

      Assets = Liabilities + Stockholders' Equity
      Flight Equipment (A) + 2 mill + Cash (A) – 2 mill = 0

D. Repairs, Maintenance, and Additions
1. Most assets require substantial expenditures during their lives to maintain or enhance their productive capacity
   a. Ordinary repairs and maintenance – Expenditures that maintain the productive capacity of the asset during the current accounting period only
      i. Recurring in nature, involve relatively small amounts at each occurrence, and do not directly lengthen the useful life of the asset
      ii. Recorded as expenses in the period in which incurred
   b. Improvements – Increase the productive life, operating efficiency, or capacity of the asset.
      i. Capital expenditures – added to appropriate asset accounts
      ii. Occur infrequently, involve large amounts of money, and increase an asset's economic usefulness in the future through either increased efficiency or longer life
2. To avoid spending too much time classifying these expenditures, companies develop policies to govern the accounting (e.g., individual items that cost less than a set dollar amount are expensed)

LO 3 – Apply various cost allocation methods as assets are held and used over time.

II. Use, Impairment, and Disposal of Plant and Equipment

A. Depreciation Concepts

1. Expense matching principle requires that a portion of an asset's cost be allocated as an expense in the same period that revenues are generated by its use
2. Depreciation – Process of allocating the cost of buildings and equipment over their productive lives using a systematic and rational method
   a. Depreciation is a process of cost allocation, not a process of determining an asset's current market value
   b. An adjusting journal entry is needed at the end of each period to reflect the use of buildings and equipment for the period

      Dr. Depreciation Expense (+E, –SE) Debit
      Cr. Accumulated Depreciation (+XA, –A) Credit

      Assets = Liabilities + Stockholders' Equity
      Accumulated Depreciation (XA) = Depreciation Expense (E)

2. Reporting:
   a. The amount of depreciation recorded during each period is reported on the income statement as Depreciation Expense
   b. The amount of depreciation expense accumulated since the acquisition date is reported on the balance sheet as a contra-account, Accumulated Depreciation, and deducted from the related asset's cost
      i. Net amount on the balance sheet is called net book value or carrying value
      ii. Net book value of a long-lived asset – Its acquisition cost less the accumulated depreciation from the acquisition date to the balance sheet date
   c. To calculate depreciation expense, three amounts are required for each asset:
      i. Acquisition cost
      ii. Estimated useful life – Expected service life of an asset to the present owner
      iii. Estimated residual (or salvage) value – Estimate of the amount to be recovered upon disposal of the asset at the end of its estimated useful life
   d. Asset's useful life and residual value are estimates; therefore, depreciation expense is an estimate

B. Alternative Depreciation Methods

1. Managers may choose:
   a. From several acceptable depreciation methods that match depreciation expense with the revenues generated in a period
   b. Different methods for specific assets or groups of assets
2. Once selected, the method should be applied consistently over time to enhance comparability of financial information
3. Most common depreciation methods:
   a. Straight-line (used by 98% of companies surveyed)
   b. Units of production.
   c. Declining balance
2. Straight-Line Method
   a. Allocates the cost of an asset in equal periodic amounts over its useful life
   b. Straight-Line Formula:
   Depreciation Expense = (Cost − Residual Value) × (1 ÷ Useful Life)
   c. Depreciable cost = Cost – Residual Value; it is the amount to be depreciated
   d. Straight-line rate = 1 ÷ Useful Life
   e. Note that:
      i. Depreciation expense is a constant amount each year
      ii. Accumulated depreciation increases by an equal amount each year
      iii. Net book value decreases by the same amount each year until it equals the estimated residual value

3. Units-of-Production Method
   a. Allocates the cost of an asset over its useful life based on the relation of its periodic output to its total estimated output
   b. Units-of-Production Formula:
   Depreciation Expense = [(Cost − Residual Value) ÷ Estimated Total Production] × Actual Production
   c. Depreciation rate per unit of production = Depreciable Cost ÷ estimated Total Production
   e. If the total estimated productive output differs from actual total output, the final adjusting entry to depreciation expense should be for the amount needed to bring the asset's net book value equal to the asset's estimated residual value
   f. Note that, from period to period, depreciation expense, accumulated depreciation, and book value vary directly with the units produced.

4. Declining-Balance Method
   a. Allocates the net book value of an asset over its useful life based on a multiple of the straight-line rate (often two times)
   b. If the asset is more efficient or productive when it is newer, matches higher depreciation expense with higher revenues in the early years of an asset's life and lower depreciation expense with lower revenues in the later years
   c. Based on applying a rate exceeding the straight-line rate to the asset's net book value over time
   d. Rate is often double (two times) the straight-line rate; termed the double-declining-balance rate
   e. Double-Declining-Balance Formula:
   Depreciation Expense = (Cost − Accumulated Depreciation) × (2 ÷ Useful Life)
   f. Unique to this method:
      i. Accumulated depreciation, not residual value, is included in the formula
         - Since accumulated depreciation increases each year, net book value (Cost minus Accumulated Depreciation) decreases
         - The double-declining rate is applied to a lower net book value each year, resulting in a decline in depreciation expense over time
      ii. An asset's book value cannot be depreciated below residual value
         - If the annual computation reduces net book value below residual value, a lower amount of depreciation expense must be recorded so that net book value equals residual value
         - No additional depreciation expense is computed in subsequent years
   g. Companies in industries that expect fairly rapid obsolescence of their equipment use the declining-balance method

C. How Managers Choose
1. Financial Reporting
   a. Managers must determine which depreciation method provides the best matching of revenues and expenses for any given asset
      i. If the asset is expected to provide benefits evenly over time, the straight-line method is preferred
         - Managers find it easy to use and explain
         - During the early years of an asset's life, the straight-line method reports higher income than the accelerated methods do
      ii. Alternatively, certain assets produce more revenue in their early lives because they are more efficient than in later years; managers then select an accelerated method

2. Tax Reporting
   a. Least and the latest rule
      i. Applied when managers have a choice among acceptable tax accounting methods
      ii. All taxpayers want to pay the lowest amount of tax that is legally permitted at the latest possible date
   b. It is both legal and ethical to maintain separate records for tax and financial reporting purposes; however, these records must effect the same transactions.
   c. Most corporations use the IRS-approved Modified Accelerated Cost Recovery System (MACRS) to calculate depreciation expense for their tax returns
      i. MACRS is similar to the declining-balance method and is applied over relatively short asset lives to yield high depreciation expense in the early years.
      ii. The high depreciation expense reported under MACRS reduces a corporation's taxable income and therefore the amount it must pay in taxes
      iii. MACRS is not acceptable for financial reporting purposes

LO 4 – Explain the effect of asset impairment on the financial statements.

D. Measuring Asset Impairment

1. Impairment – Occurs when events or changed circumstances cause the estimated future cash flows (future benefits) of these assets to fall below their book value
2. Corporations must review long-lived tangible and intangible assets for possible impairment
3. Two steps are necessary:
   a. Step 1: Test for Impairment – If net book value > estimated future cash flows, then asset is impaired
   b. Step 2: Compute Impairment Loss – If impaired, asset is written down to fair value and a loss is recognized: Impairment Loss = Net Book Value – Fair Value
4. Southwest has an aircraft with a net book value of $10,000,000 and a fair value was $7,500,000; the impairment loss = $2,500,000 ($10,000,000 net book value –$7,500,000 fair value)

   Dr. Asset Impairment Loss 2,500,000
   (+Loss, –SE)
   Cr. Flight Equipment (–A) 2,500,000

   Assets = Liabilities + Stockholders' Equity
   Flight Equipment (A) – 2,500,000 = Asset Impairment Loss (Loss) – 2,500,000

LO 5 – Analyze the disposal of property, plant, and equipment.

E. Disposal of Property, Plant and Equipment

1. Disposals (whether voluntary or involuntary) seldom occur on last day or accounting period
2. As a result, the disposal of a depreciable asset usually requires two journal entries:
   a. An adjusting entry to update the depreciation expense and accumulated depreciation accounts
   b. An entry to record the disposal
      i. The cost of the asset and any accumulated depreciation at the date of disposal must be removed from the accounts
      ii. The difference between any resources received on disposal of an asset and its book value at the date of disposal is treated as a gain or loss on the disposal of the asset
      iii. This gain (or loss) is reported on the income statement
         - Not an operating revenue (or expense) because it arises from peripheral or incidental activities rather than from central operations
         - Usually shown as a separate item on the income statement.
3. At the end of year 17, Southwest sold an aircraft for $11 million cash; cost of $30 million was depreciated using the straight-line method over 25 years with no residual value ($1.2 million depreciation expense per year)
   a. The last accounting for depreciation was at the end of year 16; record depreciation expense for year 17:

Dr. Depreciation Expense (+E, –SE)	1.2 mill	
Cr. Accumulated Depreciation (+XA, –A)		1.2 mill

   Assets = Liabilities + Stockholders' Equity
   Accumulated Depreciation (XA) – 1.2 mill =
   Depreciation Expense (E) – 1.2 mill
   b. Computation of gain/loss on sale:

Cash received		$11,000,000
Original cost	$30,000,000	
Less accumulated depreciation	20,400,000	
Book value at date of sale		9,600,000
Gain on sale		$ 1,400,000

c. Record sale:

Dr. Cash (+A)	11,000,000	
Accum. Depreciation (–XA, +A)	20,400,000	
Cr. Flight Equipment (–A)		30,000,000
Gain on Sale of Assets (+Gain, +SE)		1,400,000

Assets = Liabilities + Stockholders' Equity
Cash (A) + 11,000,000 + Accumulated Depreciation (XA) + 20,400,000 – Flight Equipment (A) 30,000,000 = Gain on Sale of Assets (Gain) + 1,400,000

LO 6 – Apply measurement and reporting concepts for intangible assets and natural resources.

III. Intangible Assets and Natural Resources

A. Acquisition and Amortization of Intangible Assets

1. Acquisition
   a. Intangible assets are recorded at historical cost only if they have been purchased
   b. If developed internally by the company, they are expensed when incurred
2. Amortization – upon acquisition, managers determine whether the separate intangibles have definite or indefinite lives:
   a. Definite Life
      i. Cost of an intangible asset with a definite life is allocated on a straight-line basis each period over its useful life in a process called amortization (similar to depreciation)
      ii. Most companies do not estimate a residual value for their intangible assets
      iii. Amortization expense is included on the income statement each period
      iv. Intangible assets are reported at cost less accumulated amortization on the balance sheet
      v. A company purchases a patent for $800,000 and intends to use it for 20 years; adjusting entry to record $40,000 in patent amortization expense ($800,000 ÷ 20 years):

Dr. Patents Amortization Exp (+E, –SE)	40,000	
Cr. Patents (–A) [or Accumulated Amortization (+XA, –A)]		40,000

Assets = Liabilities + Stockholders' Equity
Patents (A) [or Accumulated Amortization (XA)] – 40,000 = Patents Amortization Expense (E) – 40,000

b. Indefinite Life
    i. Intangible assets with indefinite lives are not amortized
    ii. Instead, the asset is tested at least annually for possible impairment; the asset's book value is written down (decreased) to its fair value if impaired

3. Types of Intangible Assets:
    a. Goodwill (cost in excess of net assets acquired)
        i. Excess of the purchase price of a business over the fair market value of the business's assets and liabilities
        ii. Arises from factors such as customer confidence, reputation for good service or quality goods, location, outstanding management team, and financial standing
        iii. Reported as an asset only if another business is purchased
        iv. Considered to have an indefinite life; must be tested for possible impairment
    b. Trademark
        i. An exclusive legal right to use a special name, image, or slogan
        ii. Rarely seen on balance sheets; intangible assets are not recorded unless they are purchased
    c. Copyright
        i. The exclusive right to publish, use, and sell a literary, musical, or artistic work
        ii. In general, the limit is 70 years beyond the death of an author; for anonymous authors, the limit is 95 years from the first publication date
    d. Technology – includes costs for computer software and Web development
    e. Patent
        i. An exclusive right granted by the federal government for a period of 20 years, typically granted to a person who invents a new product or discovers a new process
        ii. Recorded at purchase price or, if developed internally, at only their registration and legal costs because GAAP requires the immediate expensing of research and development costs
    f. Franchises
        i. A contractual right to sell certain products or services, use certain trademarks, or perform activities in a geographical region
        ii. Usually require an investment by the franchisee; therefore, should be accounted for as intangible assets
        iii. The life of the franchise agreement depends on the contract

g. Licenses and Operating Rights
   i. Obtained through agreements with governmental units or agencies, permit owners to use public property in performing their service
   ii. Can be bought and sold; therefore, should be accounted for as intangible assets
h. Research and Development Expense
   i. Not an intangible asset under U.S. GAAP
   ii. If an intangible asset is developed internally, the cost of development normally is recorded as research and development expense

B. Acquisition and Depletion of Natural Resources

1. Natural resources – Assets that occur in nature, such as mineral deposits, timber tracts, oil, and gas; often called wasting assets because they are depleted (i.e., physically used up)
   a. When acquired or developed, they are recorded in conformity with the cost principle
   b. As used up, its acquisition cost must be apportioned among the periods in which revenues are earned in conformity with the expense matching principle
   c. Depletion – The systematic and rational allocation of the cost of a natural resource over the period of its exploitation
      i. When depleted, the company obtains inventory
      ii. Since depleting the natural resource is necessary to obtain the inventory, the depletion computed during a period is not expensed immediately, but is capitalized as part of the cost of the inventory
      iii. Only when the inventory is sold does the company record an expense (Cost of Goods Sold)
2. A timber tract costing $530,000 is depleted over its estimated cutting period based on a "cutting" rate of approximately 20% per year

Dr. Inventory (+A)	106,000	
Cr. Timber Tract (–A)		106,000
[or Accumulated Depletion (+XA, –A)]		

Assets = Liabilities + Stockholders' Equity
Inventory (A) + 106,000 + Timber Tract (A) [or Accumulated Depletion (XA)] – 106,000 = 0

LO 7 – Explain how the acquisition, use, and disposal or long-lived assets impact cash flows.

C. Focus on Cash Flows – Productive Assets and Depreciation

1. Operating Activities
   a. Since depreciation expense (a noncash expense) is subtracted in calculating net income on the income statement, it must be added back to net income to eliminate its effect
   b. Any gain (or loss) on the sale of long-lived assets (an investing activity) is added (or subtracted) to determine net income, it must be subtracted from (or added to) net income to eliminate its effect

2. Investing Activities
    a. Cash outflow (–) arises from purchase of long-lived assets
    b. Cash inflow (+) equals proceeds from sales of long-lived assets

IV. Chapter Supplement A: Changes in Depreciation Estimates

A. Depreciation is based on two estimates: useful life and residual value
    1. Estimates are made at the time a depreciable asset is acquired
    2. As experience with the asset accumulates, one or both of these initial estimates may need to be revised
B. Prospective change in estimate
    1. When either estimate is revised, the undepreciated asset balance (less any residual value at that date) should be apportioned over the remaining estimated life from the current year into the future
    2. To compute new depreciation expense, substitute the net book value for the original acquisition cost, the new residual value for the original amount, and the estimated remaining life in place of the original estimated life
    3. Straight-line formula:
    Revised Depreciation Expense = (Net Book Value − New Residual Value) × (1 ÷ Remaining Life)
    4. A change in depreciation method requires significantly more disclosure
        a. Change violates the consistency principle, which requires that accounting information reported in the financial statements should be comparable across accounting periods
        b. Under GAAP, changes in accounting estimates and depreciation methods should be made only when a new estimate or accounting method "better measures" the periodic income of the business

REPORTING PROPERTY, PLANT, AND EQUIPMENT; INTANGIBLES; AND NATURAL RESOURCES

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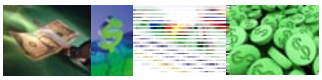

มาตรฐานการบัญชี ฉบับที่ 16 (ปรับปรุง 2557)

เรื่อง

ที่ดิน อาคารและอุปกรณ์

คำแถลงการณ์

มาตรฐานการบัญชีฉบับนี้เป็นไปตามเกณฑ์ที่กำหนดขึ้นโดยมาตรฐานการบัญชีระหว่างประเทศ ฉบับที่ 16 เรื่อง ที่ดิน อาคารและอุปกรณ์ ซึ่งเป็นฉบับปรับปรุงของคณะกรรมการมาตรฐานการบัญชีระหว่างประเทศที่สิ้นสุดในวันที่ 31 ธันวาคม 2555 (IAS 16: Property, Plant and Equipment (Bound volume 2013 Consolidated without early application))

มาตรฐานการบัญชีฉบับนี้ มีการปรับปรุงจากฉบับปี 2552 โดยปรับปรุงย่อหน้าที่ 6 และปรับปรุงถ้อยคำในย่อหน้าที่ 8 26 35.1 55 และ 77 และเพิ่มย่อหน้าที่ 81ฉ และ81ช และยกเลิกย่อหน้าที่ 32 33 77.3 และ 77.4 และปรับปรุงการอ้างอิงมาตรฐานการรายงานทางการเงินฉบับอื่น

TAS16 Property, Plant, and Equipment

Federation of Accounting Professions

Definition

- **The following terms are used in this Standard with the meanings specified:**
  - ***Carrying amount*** is the amount at which an asset is recognized after deducting any accumulated depreciation and accumulated impairment losses.
  - ***Cost*** is the amount of cash or cash equivalents paid or the fair value of the other consideration given to acquire an asset at the time of its acquisition or construction.
  - ***Depreciable amount*** is the cost of an asset, or other amount substituted for cost, less its residual value.
  - ***Depreciation*** is the systematic allocation of the depreciable amount of an asset over its useful life.
  - ***Fair value*** is the amount for which an asset could be exchanged between knowledgeable, willing parties in an arm's length transaction.
  - An ***impairment loss*** is the amount by which the carrying amount of an asset exceeds its recoverable amount.

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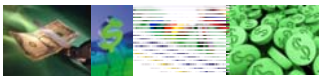


Definition

- ***Property, plant and equipment*** are tangible items that:
  - (a) are held for use in the production or supply of goods or services, for rental to others, or for administrative purposes; and
  - (b) are expected to be used during more than one period.
- ***Recoverable amount*** is the higher of an asset's fair value less costs to sell and its value in use.
- The ***residual value*** of an asset is the estimated amount that an entity would currently obtain from disposal of the asset, after deducting the estimated costs of disposal, if the asset were already of the age and in the condition expected at the end of its useful life.
- ***Useful life*** is:
  - (a) the period over which an asset is expected to be available for use by an entity; or
  - (b) the number of production or similar units expected to be obtained from the asset by an entity.

Recognition

- ***Recognition***
  - Items of property, plant, and equipment should be recognized as assets when it is probable that:
    - it is probable that the future economic benefits associated with the asset will flow to the entity, and
    - the cost of the asset can be measured reliably.
  - This recognition principle is applied to all property, plant, and equipment costs at the time they are incurred. These costs include costs incurred initially to acquire or construct an item of property, plant and equipment and costs incurred subsequently to add to, replace part of, or service it.
  - TAS 16 does not prescribe the unit of measure for recognition – what constitutes an item of property, plant, and equipment. Note, however, that if the cost model is used, each part of an item of property, plant, and equipment with a cost that is significant in relation to the total cost of the item must be depreciated separately.

Initial Measurement

- **Initial Measurement**
  - An item of property, plant and equipment should initially be recorded at cost.
    - Cost includes all costs necessary to bring the asset to working condition for its intended use.
    - This would include not only its original purchase price but also costs of site preparation, delivery and handling, installation, related professional fees for architects and engineers, and the estimated cost of dismantling and removing the asset and restoring the site.



Measurement Subsequent to Initial Recognition

- ***Measurement Subsequent to Initial Recognition***
  - TAS 16 permits two accounting models:
    - Cost Model. The asset is carried at cost less accumulated depreciation and impairment.
    - Revaluation Model. The asset is carried at a revalued amount, being its fair value at the date of revaluation less subsequent depreciation and impairment, provided that fair value can be measured reliably.



Depreciation

- **Depreciation (Cost and Revaluation Models)**
  - For all depreciable assets:
    - The depreciable amount (cost less residual value) should be allocated on a systematic basis over the asset's useful life.
    - The residual value and the useful life of an asset should be reviewed at least at each financial year-end and, if expectations differ from previous estimates, any change is accounted for prospectively as a change in estimate.
    - The depreciation method used should reflect the pattern in which the asset's economic benefits are consumed by the entity.
    - The depreciation method should be reviewed at least annually and, if the pattern of consumption of benefits has changed, the depreciation method should be changed prospectively as a change in estimate.
    - Depreciation should be charged to the Statement of Comprehensive Income, unless it is included in the carrying amount of another asset.
    - Depreciation begins when the asset is available for use and continues until the asset is derecognised, even if it is idle.

Derecognition

- **Derecogniton (Retirements and Disposals)**
  - An asset should be removed from the statement of financial position on disposal or when it is withdrawn from use and no future economic benefits are expected from its disposal. The gain or loss on disposal is the difference between the proceeds and the carrying amount and should be recognized in profit or loss.



Disclosure

- **Disclosure**
  - For each class of property, plant, and equipment, disclose:
    - basis for measuring carrying amount
    - depreciation method(s) used
    - useful lives or depreciation rates
    - gross carrying amount and accumulated depreciation and impairment losses
    - reconciliation of the carrying amount at the beginning and the end of the period, showing:
      - additions
      - disposals
      - acquisitions through business combinations
      - revaluation increases or decreases
      - impairment losses
      - reversals of impairment losses
      - depreciation
      - net foreign exchange differences on translation
      - other movements

Classifying Long-Lived Assets

- **The resources that determine a company's productive capacity are often called long-lived assets.**
  - These assets that are listed as noncurrent assets on the Statement of Financial Position may be either tangible or intangible, and have the following characteristics.

Tangible assets

- They have physical substance; that is they can be touched. This classification is called ***property, plant, and equipment*** or fixed assets.
  - Land
  - Building, fixtures, and equipment

Intangible assets

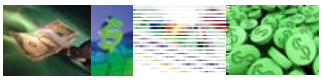
- They are long-lived assets without physical substance that confer specific rights on their owner.
  - Examples are patents, copyrights, franchises, licenses, and trademarks.

Property, Plant, and Equipment

- **Property, plant, and equipment include land, building structures (offices, factories, warehouses), and equipment (machinery, furniture, tools).**
  - Major characteristics of property, plant, and equipment are as follows:
    - They are acquired for use in operations and not for resale.
    - They are long-term in nature and usually depreciated.
    - They possess physical substance.

Asset Cost

- **Most companies use historical cost as the basis for valuing property, plant, and equipment.**
  - Historical cost measures the cash or cash equivalent price of obtaining the asset and bringing it to the location and condition necessary for its intended use.
- **Under the cost principle, all reasonable and necessary expenditures made in acquiring and preparing an asset for use should be recorded as the cost of the asset.**
  - Acquisition cost:
    - The net cash equivalent amount paid or to be paid for the asset.
  - The expenditures are capitalized when they are recorded as part of the cost of an asset instead of as expenses in the current period.



Measuring and Recording Asset Cost

- **Example:**
  - On Jan. 1, 2001, Company A purchased new equipment for a list price of 5,200,000 Baht. Company A received a discount of 200,000 Baht.
  - In addition, Company A paid for transportation and installation cost of 100,000 Baht

Invoice price	5,200,000
Less: Discount	(200,000)
Net cash invoice price	5,000,000
Add: Transportation and installation cost	100,000
Asset cost	**5,100,000**

Acquired Asset for Cash

- **Assuming that Company A paid for the equipment and related costs, the transaction is recorded as follows:**

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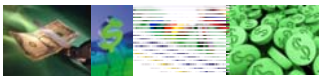
Date		Account Titles and Explanation	Debit	Credit
Jan.	1	Dr. Equipment	5,100,000	
20XX		Cr. Cash		5,100,000
		To record purchase equipment for cash		
Date		**Account Titles and Explanation**	**Debit**	**Credit**
Jan.	1	Dr. Equipment	5,100,000	
20XX		Cr. Cash		100,000
		Note payable		5,000,000
		Purchase equipment for debt and cash		
Date		**Account Titles and Explanation**	**Debit**	**Credit**
Jan.	1	Dr. Equipment	5,100,000	
		Cr. Cash		300,000
		Capital Stock		4,800,000
		Purchase equipment for equity and cash		



Basket (Lump-sum) Purchase

- **Basket (Lump-sum) Purchase**
  - The purchase of two or more assets acquired together at a single price.
    - Relative Fair Market Value Method is used
      - A way of allocating a basket purchase price to the individual assets acquired based on their respective market values.
- **Illustration:**
  - Frank's Fruit Farm purchased land and a new sorting facility at a total cost of 3,600,000 Baht.

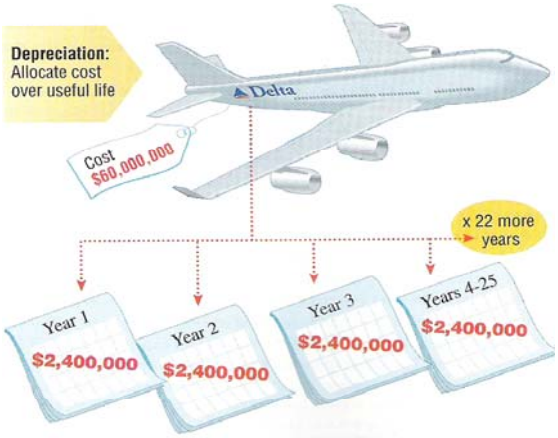
Asset	Fair Value	% of Total Value	Calculation	Cost Allocation
Land	1,000,000	25%	25% x 3,600,000 =	900,000
Building	3,000,000	75%	75% x 3,600,000 =	2,700,000
Total	**4,000,000**			**3,600,000**

Depreciation

Depreciation: Process of allocating the asset cost over their productive lives using a systematic and rational method.

Estimated useful life: The expected service life of an asset to the present owner.

Residual value: The estimated amount to be recovered at the end of the company's estimated useful life of an asset.



Using the asset→depreciation expense each year

Depreciation

It is the accounting process of allocating the cost of tangible assets to expense in a systematic and rational manner to those periods expected to benefit from the use of the asset.

When companies write off the cost of long-lived assets over a number of periods, they typically use the term depreciation.

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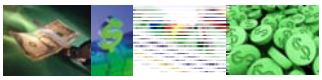


Book Value

Book value: Difference between the balance of an asset and its related accumulated depreciation.

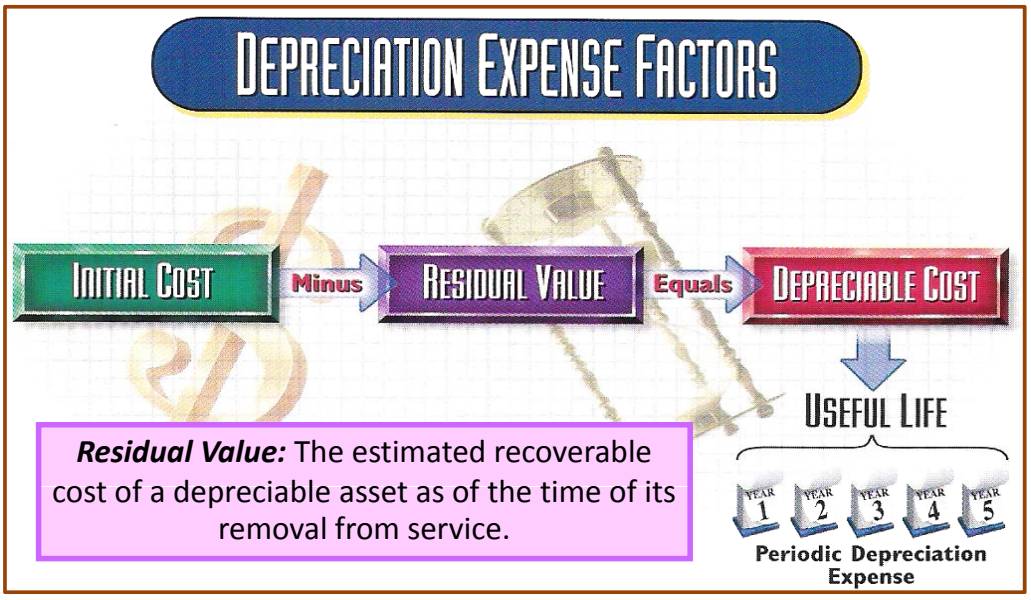
Accumulated depreciation: The contra asset account used to accumulate the depreciation recognized to date on plant assets.

	Cost $60,000,000		Book Value (on balance sheet)
Year 1	-$2,400,000	=	$57,600,000
Year 2	- 4,800,000	=	55,200,000
Year 3	- 7,200,000	=	52,800,000
Year 25	- 60,000,000	=	0

Accumulated Depreciation (at the end of each year)

Factors Involved in the Depreciation Process

- **Depreciable base for the asset**
  - Depreciation base = Asset cost – Salvage value
  - Salvage value is the estimated amount that a company will receive when it sells the assets or removes it from service.
- **Estimation of service lives**
- **Methods of depreciation**
  - Activity method or units-of-production approach
    - This method assumes that depreciation is a function of use or productivity, instead of the passage of time.
  - Straight-line method
    - This method considers a function of time rather than a function of usage.
  - Decreasing-charge methods
    - These methods provide for a higher depreciation cost in the earlier years and lower charges in later periods.
      - Sum-of-the-years'-digits
      - Declining-balance method



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Date		Account Titles and Explanation	Debit	Credit
Dec.	31	Dr. Depreciation expense	XXX	
20XX		Cr. Accumulated depreciation		XXX
		To record depreciation expense		

A	=	L	+	E
Accumulated depreciation xx [XA+, A-]				Depreciation expense xx [EXP+, R/E-, E-]

Depreciation

- **Depreciation**
  - The allocation of the cost of a plant asset to expense in the periods in which services are received from the assets.

Statement of Financial Position

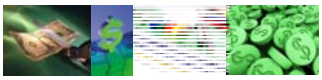
- **Assets:**
- Plant and equipment
- Less: Accumulated depreciation

Cost of plant assets

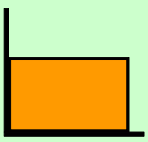
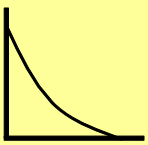
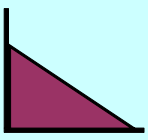
Statement of Comprehensive Income

- **Expenses:**
- Depreciation expense

As the services are received

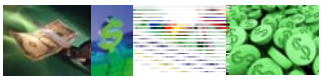


Depreciation Methods

Method	Pattern	Computation	Remarks
Straight-line		**(Asset cost - Residual value) / Useful life**	Or **Depreciable cost x Straight-line rate** **Straight-line rate** = 100% / Useful life
Double declining balance		**(Asset cost - Accumulated depreciation) X Accelerated rate**	Or **Book value x Accelerated rate** **Accelerated rate** = 200% / Useful life = 2 X Straight-line rate
Sum of the years' digits		**(Asset cost - Residual value) X Fraction**	**Fraction** = Remaining useful life / Sum of the years' digits **Sum of the years' digits** = n(n+1) / 2
Units of production		**Units produced X Rate per unit**	**Rate per unit** = (Asset cost - Residual value) / Estimated capacity

Depreciation Calculations

- **To illustrate the depreciation calculation, we assumed that Company A purchased equipment on January 1, 20X1.**
  - The following facts apply:
    - Acquisition cost: 24,000 Baht
    - Estimated residual value: 2,000 Baht
    - Estimated useful life:
      - In years: 5 years
      - In capacity: 60,000 units



Straight-line Method

Annual depreciation expense

= (Asset cost – Residual value) / Useful life (years)

= (24,000 – 2,000) / 5

= 4,400 Baht per year

	Computation	Annual Depreciation Expense	Accumulated Depreciation	Book Value
Acquisition date				24,000
End of year 1	(24,000 - 2,000) / 5	4,400	4,400	19,600
End of year 2	(24,000 - 2,000) / 5	4,400	8,800	15,200
End of year 3	(24,000 - 2,000) / 5	4,400	13,200	10,800
End of year 4	(24,000 - 2,000) / 5	4,400	17,600	6,400
End of year 5	(24,000 - 2,000) / 5	4,400	22,000	***2,000***
		22,000		

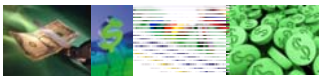
Double Declining Balance Method

Straight-line rate
= 100% / Useful life (years)
= 100% / 5
= 20%

Accelerated rate
= 2 X Straight-line rate
= 2 X 20%
= 40%

Annual depreciation expense
= (Asset cost – Accumulated depreciation) X Accelerated rate

	Computation	Annual Depreciation Expense	Accumulated Depreciation	Book Value
Acquisition date				24,000
End of year 1	24,000 X 40%	9,600	9,600	14,400
End of year 2	14,400 X 40%	5,760	15,360	8,640
End of year 3	8,640 X 40%	3,456	18,816	5,184
End of year 4	5,184 X 40%	2,074	20,890	3,110
End of year 5	*(22,000 - 20,890)	1,110	22,000	***2,000***
		22,000		



Units of Production Method

Units produced:
Year 1: 12,000 units
Year 2: 18,000 units
Year 3: 11,000 units
Year 4: 9,000 units
Year 5: 10,000 units

Depreciation rate per unit
= (Asset cost – Residual value) /
Estimated capacity
= (24,000 – 2,000) / 60,000 = 0.37 Baht per unit

Annual depreciation expense
= Actual units produced X Depreciation rate per unit

	Computation	Annual Depreciation Expense	Accumulated Depreciation	Book Value
Acquisition date				24,000
End of year 1	12,000 X 0.37	4,400	4,400	19,600
End of year 2	18,000 X 0.37	6,600	11,000	13,000
End of year 3	11,000 X 0.37	4,033	15,033	8,967
End of year 4	9,000 X 0.37	3,300	18,333	5,667
End of year 5	10,000 X 0.37	3,667	22,000	***2,000***
		22,000		

Sum-of-the-years-digits Method

Remaining useful life

Sum-of-the-years'-digits
[n (n+1)] / 2

Sum-of-the-years'-digits
= [N(N+1)] / 2
= (5 X 6) / 2 → Useful life = 5 years
= 15

Annual depreciation expense
= (Asset cost – Residual value) X Fraction

	Computation	Annual Depreciation Expense	Accumulated Depreciation	Book Value
Acquisition date				24,000
End of year 1	(24,000 - 2,000) X 5/15	7,333	7,333	16,667
End of year 2	(24,000 - 2,000) X 4/15	5,867	13,200	10,800
End of year 3	(24,000 - 2,000) X 3/15	4,400	17,600	6,400
End of year 4	(24,000 - 2,000) X 2/15	2,933	20,533	3,467
End of year 5	(24,000 - 2,000) X 1/15	1,467	22,000	***2,000***
		22,000		

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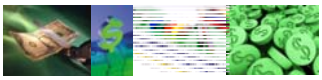


Other Issues

- **Estimates of Useful Life and Residual Value**
  - May differ from company to company.
  - The reasonableness of management's estimates is evaluated by external auditors.
- **Principle of Consistency**
  - Companies should avoid switching depreciation methods from period to period.

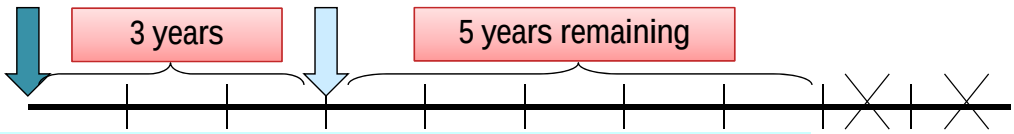
The total amount of depreciation recorded over the useful life of an asset is the same regardless of the method used. Depreciation expense recorded in any one period will vary according to method used.

Change in Accounting Estimates

- **Over the life of an asset, new information may come to light that indicates the original estimates need to be revised.**
  - Residual value
  - Useful life
- **Illustration**
  - On January 1, 20X1, equipment was purchased at a cost of 300,000 Baht. The equipment has a useful life of 10 years and no salvage value.
  - On January 1, 20X4, the useful life was revised to 8 years total (5 years remaining).
    - Calculate depreciation expense for the year ended December 31, 20X4, using the straight-line method.

On Jan.1, 20X1, Co. purchased equipment for 300,000 Baht

On Jan.1, 20X4, Co. revised useful life to be 8 years total



❶ **Straight-line depreciation (Original estimates)**
= (Asset cost - Residual value) / Useful life
= (300,000 - 0) / 10
= 30,000 per year

Original estimates:
Residual value = 0
Useful life = 10 years

❷ **Accumulated depreciation at the date of change**
= 30,000 Dep. per year X 3 years
= 90,000

❸ **Book value at the date of change**
= Asset cost - Acc. Dep.
= 300,000 - 90,000
= 210,000

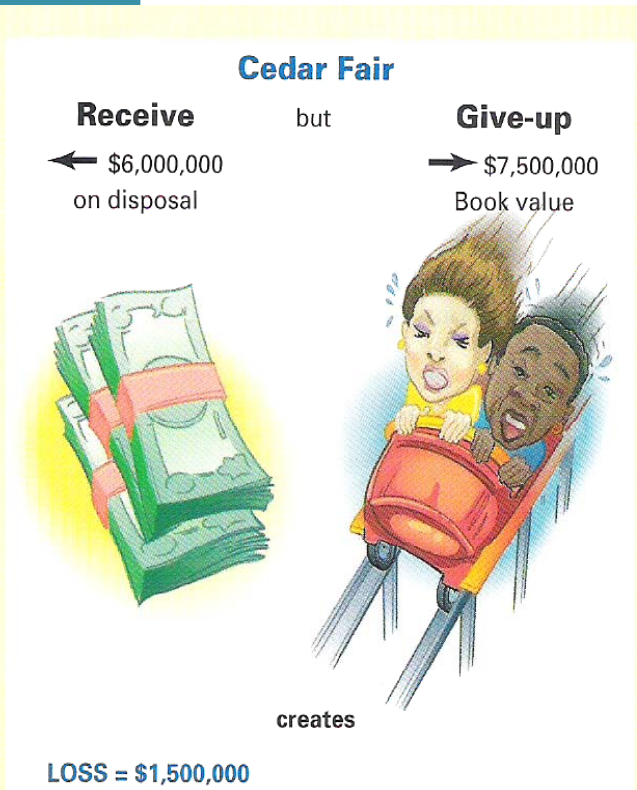
❹ **Revised depreciation per year**
= (Book value at the date of change - Revised residual value) / Remaining useful life
= (210,000 - 0) / 5
= 42,000

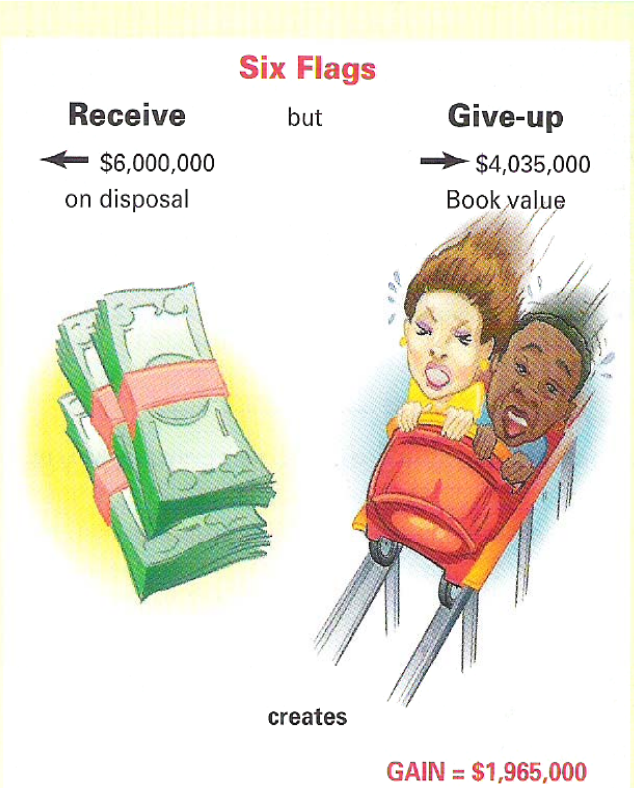
Revised estimates:
Residual value = 0
Useful life = 8 years

Disposition of Property, plant, and Equipment

- **The disposal of a depreciable asset usually requires two journal entries:**
  - An adjusting entry to update the depreciation expense and accumulated depreciation account.
  - An entry to record the disposal.

Disposal of Property, plant, and Equipment





Disposal of Property, Plant, and Equipment (Cont.)

- **Illustration:**
  - On Sept. 30, 20X6, Company A sold machine that originally cost 1,000,000 Baht for 600,000 Baht cash.
    - The machine was placed in service on Jan. 1, 20X1.
      - It was depreciated using the straight-line method with an estimated salvage value of 200,000 Baht and a useful life of 10 years.



On Jan.1, 20X1, Co. purchased equipment for 1,000,000 Baht

On Sept. 30, 20X6, Co. sold equipment for 600,000 Baht

5 years and 9 months

❶ Straight-line depreciation per year
= (Asset cost - Residual value) / Useful life
= (1,000,000 - 200,000) / 10
= 80,000

Residual value = 200,000

Useful life = 10 years

❷ Accumulated depreciation at the date of sale
= (80,000 X 5 yrs) + (80,000 X (9/12))
= 460,000

❸ Book value at the date of sale
= Asset cost - Acc. Dep.
= 1,000,000 - 460,000
= 540,000

Cash > BV ➔ Gain (↑E)
Cash < BV ➔ Loss (↓E)

❹ Compare the book value at the date of sale with the cash received:

Cash received from sale		**600,000**
Book value at the date of sale		
Asset cost	**1,000,000**	
Less: Accumulated depreciation	**(460,000)**	**(540,000)**
Gain (loss) on sale		**60,000**

Disposal of Property, Plant, and Equipment (Cont.)

- **Prepare the journal entry to record Evans' sale of the machine on September 30, 20X6.**

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Date		Account Titles and Explanation	Debit	Credit
Sept.	30	Dr. Depreciation expense	60,000	
20X6		Cr. Accumulated depreciation		60,000
		To record depreciation expense during 20X6		
Sept.	30	Dr. Cash	600,000	
20X6		Accumulated depreciation	460,000	
		Cr. Equipment		1,000,000
		Gain on sale of equipment		60,000
		To record the sale of equipment		

A		=	L	+	E	
Accumulated depreciation [XA+, A-]	-60,000				Depreciation expense [EXP+, R/E-, E-]	-60,000
Cash [A+]	+600,000				Gain on sale of equipment [REV+, R/E+, E+]	+60,000
Equipment [A-]	-1,000,000					
Accumulated depreciation [XA-, A+]	+460,000					

STATEMENTS OF FINANCIAL POSITION

Example of Financial Statement Presentation & Disclosure: Property, Plant, & Equipment
[Source: www.farmhouse.co.th]

PRESIDENT BAKERY PUBLIC COMPANY LIMITED
As at 31 December 2011 and 2010

(Unit: Baht)

	NOTE	SEPARATE FINANCIAL STATEMENTS 2011	2010
Non-current assets			
Investment in joint venture	12	5,850,000	5,850,000
Other long-term investment	13	15,000,000	-
Property, plant and equipment	14	2,786,147,285	2,660,925,587
Advance payments for purchase of assets		29,022,722	15,347,413
Intangible assets	15	805,771	1,294,434
Leasehold rights	16	1,996,354	2,323,734
Other non-current assets		6,356,402	6,541,253
Total non-current assets		2,845,178,534	2,692,282,421
Total assets		4,312,142,658	3,762,471,123

6.6 Property, plant and equipment and depreciation

Land is stated at cost. Plant and equipment are stated at cost less accumulated depreciation. Depreciation of plant and equipment is calculated by reference to their costs on a straight-line basis over the estimated useful lives of assets, except for computer equipment acquired since 1 January 2002 calculated by double declining balance basis, as follows:

Buildings	-	10 - 20 years
Machinery and equipment	-	5 - 20 years
Computer equipment	-	3 - 5 years
Furniture and office equipment	-	5 years
Motor vehicles	-	5 years

No depreciation is provided on land, construction in progress and assets under installation.

Depreciation is included in determining income.

An item of plant and equipment is derecognised upon disposal or when no future economic benefits are expected from its use or disposal. Any gain or loss arising on disposal of an asset is included in profit or loss when the asset is derecognised.

14. PROPERTY, PLANT AND EQUIPMENT

(Unit: Thousand Baht)

	Land	Building	Machinery and equipment	Furniture and office equipment	Motor vehicles	Construction in progress and assets under installation	Total
Cost							
1 January 2010	158,205	1,027,916	2,067,173	601,718	472,991	33,931	4,361,934
Additions	9,033	-	-	61,443	18,027	475,883	564,386
Transfers in (out)	121	2,582	58,288	19,491	89,223	(170,255)	(550)
Disposals	-	-	(35,840)	(911)	(11,369)	-	(48,120)
31 December 2010	167,359	1,030,498	2,089,621	681,741	568,872	339,559	4,877,650
Additions	-	-	16,359	50,403	3,006	466,523	536,291
Transfers in (out)	-	9,397	636,179	44,718	87,246	(777,540)	-
Disposals	-	-	-	(22,562)	(11,745)	-	(34,307)
31 December 2011	167,359	1,039,895	2,742,159	754,300	647,379	28,542	5,379,634
Accumulated depreciation							
1 January 2010	-	155,049	962,076	423,118	347,966	-	1,888,209
Depreciation for the year	-	51,417	183,692	78,179	61,112	-	374,400
Depreciation - disposals	-	-	(33,605)	(910)	(11,369)	-	(45,884)
31 December 2010	-	206,466	1,112,163	500,387	397,709	-	2,216,725
Depreciation for the year	-	49,761	211,549	86,626	62,193	-	410,129
Depreciation - disposals	-	-	-	(21,976)	(11,391)	-	(33,367)
31 December 2011	-	256,227	1,323,712	565,037	448,511	-	2,593,487
Net book value							
31 December 2010	167,359	824,032	977,458	181,354	171,163	339,559	2,660,925
31 December 2011	167,359	783,668	1,418,447	189,263	198,868	28,542	2,786,147
Depreciation for the year							
2010 (Baht 281 million included in manufacturing cost, and the balance included in selling and administrative expenses)							374,400
2011 (Baht 311 million included in manufacturing cost, and the balance included in selling and administrative expenses)							410,129

As at 31 December 2011, the Company has equipment acquired under finance lease agreements, with net book value amounting to Baht 191 million (2010: Baht 162 million).

As at 31 December 2011, certain equipment items have been fully depreciated but are still in use. The gross carrying amount before deducting accumulated depreciation of those assets amounted to approximately Baht 1,153 million (2010: Baht 975 million).

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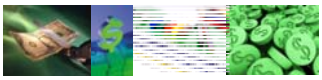


มาตรฐานการบัญชี ฉบับที่ 38 (ปรับปรุง 2557)
เรื่อง
สินทรัพย์ไม่มีตัวตน

คำแถลงการณ์

มาตรฐานการบัญชีฉบับนี้เป็นไปตามเกณฑ์ที่กำหนดขึ้นโดยมาตรฐานการบัญชีระหว่างประเทศ ฉบับที่ 38 เรื่อง สินทรัพย์ไม่มีตัวตน ซึ่งเป็นฉบับปรับปรุงของคณะกรรมการมาตรฐานการบัญชีระหว่างประเทศที่สิ้นสุดในวันที่ 31 ธันวาคม 2555 (IAS 38: Intangible assets Bound volume 2013 Consolidated without early application)

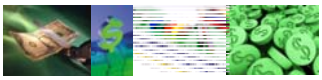
มาตรฐานการบัญชีฉบับนี้ มีการปรับปรุงจากฉบับปี 2555 โดยปรับปรุงย่อหน้าที่ 3.5 8 33 47 50 75 78 82 84 100 และ 124 และยกเลิกย่อหน้าที่ 39 ถึงย่อหน้าที่ 41 และย่อหน้าที่ 130จ และปรับปรุงการอ้างอิงมาตรฐานการรายงานทางการเงินฉบับอื่น

TAS38 Intangible Assets

Federation of Accounting Professions

Intangible Assets

- **Intangible assets:**
  - Assets that have special rights but not physical substance.
    - Characteristics
      - They lack physical existence.
      - They are not financial instruments
  - Intangible assets are recorded at historical cost only if they have been purchased. If these assets are developed internally by the company, they are expensed when incurred.
    - Upon acquisition of intangible assets, managers determine whether the separate intangibles have definite or indefinite lives.



Definite VS. Indefinite Life

Definite Life

- The cost of an intangible with a definite life is allocated on ***a straight-line basis*** each period over its useful life in a process called ***amortization*** that is similar to depreciation and depletion.
- Most companies do <u>not</u> estimate a residual value for their intangible assets.
- Amortization expense is included on the Statement of Comprehensive Income each period and the intangible asses are reported at ***cost less accumulated amortization*** on the Statement of Financial Position.

Indefinite Life

- Intangible assets with indefinite lives are <u>not</u> amortized.
- These assets are to be tested at least annually for possible ***impairment***, and the asset's book value is written down (decreased) to its fair value if impaired.

Intangible Assets

- **Valuation**
  - Purchased intangibles
    - Intangibles purchased from another party are recorded at cost. Cost includes all costs of acquisition and expenditures necessary to make the intangible asset ready for its intended use. Typical costs include purchase price, legal fees, and other incidental expenses.
  - Internally created intangibles
    - Cost incurred internally to create intangibles are generally expensed. Thus, even though a company may incur substantial research and development costs to create an intangible, it expenses these costs.
- **Amortization of intangibles**
  - The allocation of the cost of intangible assets in a systematic way is called amortization.

A		=	L	+	E	
Intangible assets [A+]	xx					
Cash [A-]	xx		Purchase of Intangible Assets for cash			
Accumulated amortization [XA+, A-]	xx		To record amortization expense		Amortization expense [EXP+, R/E-, E-]	xx

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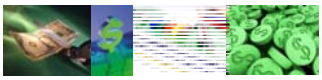

Types of Intangible Assets

- **Marketing-related intangible assets**
- **Customer-related intangible assets**
- **Artistic-related intangible assets**
- **Contract-related intangible assets**
- **Technology-related intangible assets**
- **Goodwill**

Types of Intangible Assets

- **Marketing-related intangible assets**
  - Companies primarily use marketing-related intangible assets in the marketing or promotion of products or services.
    - Examples – trademarks, trade names, internet domain names, etc.
      - A trademark or trade name is a word, phrase, or symbol that distinguishes or identifies a particular company or product.
- **Customer-related intangible assets**
  - Customer-related intangible assets result from interactions with outside parties.
    - Examples – customer lists
- **Artistic-related intangible assets**
  - Artistic-related intangible assets involve ownership rights to plays, literary works, musical works, pictures, photographs, and video and audiovisual material.
    - Copyrights protect these ownership rights.

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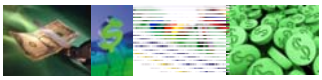

Types of Intangible Assets

- **Contract-related intangible assets**
  - Contract-related intangible assets represent the value of rights that arise from contractual arrangements.
    - Examples – franchise and licensing agreements, broadcast rights, and service or supply contracts.
      - A franchise is a contractual arrangement under which the franchisor grants the franchisee the right to sell certain products or services, to use certain trademarks or trade names, or to perform certain functions, usually within a designated geographical area.
- **Technology-related intangible assets**
  - Technology-related intangible assets relate to innovations or technological advances.
    - Examples – patented technology, trade secrets
      - A patent gives the holder exclusive right to use, manufacture, and sell a product or process without interference or infringement by others.
- **Goodwill**
  - In a business combination, a company assigns the cost (purchase price), where possible, to identifiable tangible and intangible net assets. It records the remainder in an intangible asset account called "Goodwill". Goodwill is not amortized.

STATEMENTS OF FINANCIAL POSITION

Example of Financial Statement Presentation & Disclosure: Intangible Assets
[Source: www.farmhouse.co.th]

PRESIDENT BAKERY PUBLIC COMPANY LIMITED
As at 31 December 2011 and 2010

(Unit: Baht)

	NOTE	SEPARATE FINANCIAL STATEMENTS 2011	2010
Non-current assets			
Investment in joint venture	12	5,850,000	5,850,000
Other long-term investment	13	15,000,000	-
Property, plant and equipment	14	2,786,147,285	2,660,925,587
Advance payments for purchase of assets		29,022,722	15,347,413
Intangible assets	15	805,771	1,294,434
Leasehold rights	16	1,996,354	2,323,734
Other non-current assets		6,356,402	6,541,253
Total non-current assets		2,845,178,534	2,692,282,421
Total assets		4,312,142,658	3,762,471,123

6.7 Intangible assets

Intangible assets are measured at cost on the date of acquisition. Following initial recognition, intangible assets are carried at cost less any accumulated amortisation and any accumulated impairment losses.

Intangible assets with finite lives are amortised on a systematic basis over the economic useful life, except for computer software acquired since 1 January 2002 calculated by double declining balance basis, and tested for impairment whenever there is an indication that the intangible asset may be impaired. The amortisation period and the amortisation method of such intangible assets are reviewed at least at each financial year end. The amortisation expense is charged to profit or loss.

A summary of the intangible assets with finite useful lives is as follows:

	USEFUL LIVES
Computer software	5 years

15. INTANGIBLE ASSETS

Details of intangible assets, which are computer software, are as follows:

(Unit: Thousand Baht)

	2011	2010
Cost		
Balance - beginning of year	11,507	10,687
Additions	126	270
Transfer in	-	550
Balance - ending of year	11,633	11,507
Less: Accumulated amortisation	(10,827)	(10,213)
Net book value	806	1,294
Amortisation expenses included in the statements of comprehensive income for the year	614	966

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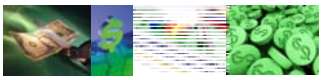

Property, Plant, and Equipment (PPE)

Key terms: **Property, plant and equipment** are **tangible** items that:
(a) are held for use in the production or supply of goods or services, for rental to others, or for administrative purposes; and
(b) are expected to be used during more than one period.

Examples are building, machine, land, furniture, plant, vehicle, etc.

Cost is the amount of cash or cash equivalents paid or the fair value of the other consideration given to acquire an asset at the time of its acquisition or construction.

Useful life is:
(a) the period over which an asset is expected to be available for use by an entity; or
(b) the number of production or similar units expected to be obtained from the asset by an entity.

The **residual value** of an asset is the estimated amount that an entity would currently obtain from disposal of the asset, after deducting the estimated costs of disposal, if the asset were already of the age and in the condition expected at the end of its useful life.

Depreciable amount is the cost of an asset, or other amount substituted for cost, less its residual value.

Depreciation is the systematic allocation of the depreciable amount of an asset over its useful life.

Carrying amount is the amount at which an asset is recognized after deducting any accumulated depreciation and accumulated impairment losses.

Example: **Information on Acquisition, Depreciation, Disposal of PPE and Financial Statement Presentation:**

Company A acquired the **truck** for ฿1,250,000 cash on January 1, 20X1. <-- COST
The estimated useful life is 5 years or 125,000 kilometers driven. <-- USEFUL LIFE
(Actual units used are 27,000, 29,000, 25,000, 24,000, 20,000 kilometers driven in YR. 1-5)
The residual value at the end of the useful life is ฿250,000. <-- RESIDUAL VALUE

I. Acquisition of Property, Plant, and Equipment

Journal entry to record acquisition

Date	General Journal	Debit	Credit

II. Depreciation of Property, Plant, and Equipment

COST - RESIDUAL VALUE = DEPRECIABLE AMOUNT <-- DEPRECIABLE AMOUNT

Journal entry to record depreciation

Date	General Journal	Debit	Credit

Depreciation method

(1) Straight line method

Year	Calculations	Depreciation Expense	Accumulated Depreciation	Carrying Amount (Book Value)
YR0:				
YR1:				
YR2:				
YR3:				
YR4:				
YR5:				

(2) Double-declining method

Year	Calculations	Depreciation Expense	Accumulated Depreciation	Carrying Amount (Book Value)
YR0:				
YR1:				
YR2:				
YR3:				
YR4:				
YR5:				

(3) Sum-of-the-years' digits method

Year	Calculations	Depreciation Expense	Accumulated Depreciation	Carrying Amount (Book Value)
YR0:				
YR1:				
YR2:				
YR3:				
YR4:				
YR5:				

(4) Unit-of-production method

Year	Calculations	Depreciation Expense	Accumulated Depreciation	Carrying Amount (Book Value)
YR0:				
YR1:				
YR2:				
YR3:				
YR4:				
YR5:				

III. Change in Accounting Estimates of Property, Plant, and Equipment

IF company A decided to revise the useful life from 5 years to 8 years on January 1, 20X3.
The company applied the straight-line method for this truck and the residual value is revised to ฿100,000.

Straight line method

Year	Calculations	Depreciation Expense	Accumulated Depreciation	Carrying Amount (Book Value)
YR0:				
YR1:				
YR2:				
YR3:				
YR4:				
YR5:				
YR6:				
YR7:				
YR8:				

IV. Disposal of Property, Plant, and Equipment

IF company A sold the truck on September 30, 20X3 for ฿750,000 cash.
The company applied the straight-line method for this truck.

Gain or loss calculation

Figure 1: Proceed from sale

Figure 2: Carrying amount (Book value) at the time of sale
- Cost
- Less: Accumulated depreciation
- Carrying amount (Book value) at the time of sale

Gain (Loss) on sale

Journal entry to record disposal

Date	General Journal	Debit	Credit

V. Financial Statement Presentation

Statement of Comprehensive Income	**20X1**	**20X2**
REVENUE		
EXPENSE		
Depreciation expense		
GAIN (LOSS)		
Gain (Loss) on sale of truck		
PROFIT OR LOSS (NET INCOME)		
+/- OTHER COMPREHENSIVE INCOME		
= TOTAL COMPREHENSIVE INCOME		

Statement of Financial Position	**Dec. 31, 20X1**	**Dec. 31, 20X2**
ASSETS		
Property, Plant, and Equipment, cost		
Less: Accumulated Depreciation (Contra-asset account)		
Property, Plant, and Equipment, net (Carrying value or Book value)		
LIABILITIES		
SHAREHOLDERS' EQUITY		

Available with McGraw-Hill's Homework Manager

EXERCISES

Preparing a Classified Balance Sheet

E8-1
LO1
Hasbro, Inc.

The following is a list of account titles and amounts (dollars in millions) reported by Hasbro, Inc., a leading manufacturer of games, toys, and interactive entertainment software for children and families:

Buildings and improvements	$206	Goodwill	$ 464
Prepaid expenses and other current assets	212	Machinery and equipment	304
Allowance for doubtful accounts	39	Accumulated depreciation	358
Other noncurrent assets	280	Inventories	169
Accumulated amortization (other intangibles)	435	Other intangibles	1,146
Cash and cash equivalents	521	Land and improvements	18
		Accounts receivable	646
		Tools, dies, and molds	30

Required:
Prepare the asset section of the balance sheet for Hasbro, Inc., classifying the assets into Current Assets, Property, Plant, and Equipment (net), and Other Assets.

Computing and Interpreting the Fixed Asset Turnover Ratio from a Financial Analyst's Perspective

E8-2
LO1
Apple Inc.

The following data were included in a recent Apple Inc. annual report ($ in millions):

In millions	2007	2006	2005	2004
Net sales	$24,006	19,315	13,931	8,279
Net property, plant, and equipment	$ 1,832	1,281	817	707

Required:

1. Compute Apple's fixed asset turnover ratio for 2005, 2006, and 2007.
2. How might a financial analyst interpret the results?

E8-3 Computing and Recording Cost and Depreciation of Assets (Straight-Line Depreciation)
LO2, 3

KD Company bought a building for $71,000 cash and the land on which it is located for $107,000 cash. The company paid transfer costs of $3,000 ($1,000 for the building and $2,000 for the land). Renovation costs on the building were $23,000.

Required:

1. Give the journal entry to record the purchase of the property, including all expenditures. Assume that all transactions were for cash and that all purchases occurred at the start of the year.
2. Compute straight-line depreciation at the end of one year, assuming an estimated 10-year useful life and a $15,000 estimated residual value.
3. What would be the net book value of the property (land and building) at the end of year 2?

E8-4 Determining Financial Statement Effects of an Asset Acquisition and Depreciation (Straight-Line Depreciation)
LO2, 3

Kalriess Company ordered a machine on January 1, 2011, at an invoice price of $21,000. On date of delivery, January 2, 2011, the company paid $8,000 on the machine, and the balance was on credit at 10 percent interest. On January 3, 2011, it paid $1,000 for freight on the machine. On January 5, Kalreiss paid installation costs relating to the machine amounting to $1,500. On July 1, 2011, the company paid the balance due on the machine plus the interest. On December 31, 2011 (the end of the accounting period), Kalriess recorded depreciation on the machine using the straight-line method with an estimated useful life of 10 years and an estimated residual value of $3,500.

Required (round all amounts to the nearest dollar):

1. Indicate the effects (accounts, amounts, and + or −) of each transaction (on January 1, 2, 3, 5, and July 1) on the accounting equation. Use the following schedule:

Date	Assets	=	Liabilities	+	Stockholders' Equity

2. Compute the acquisition cost of the machine.
3. Compute the depreciation expense to be reported for 2011.
4. What is the impact on the cost of the machine of the interest paid on the 10 percent note? Under what circumstances can interest expense be included in acquisition cost?
5. What would be the net book value of the machine at the end of 2012?

E8-5 Recording Depreciation and Repairs (Straight-Line Depreciation)
LO2, 3

Stacey Company operates a small manufacturing facility as a supplement to its regular service activities. At the beginning of 2010, an asset account for the company showed the following balances:

Manufacturing equipment	$100,000
Accumulated depreciation through 2009	66,000

During 2010, the following expenditures were incurred for the equipment:

Routine maintenance and repairs on the equipment	$ 1,000
Major overhaul of the equipment that improved efficiency	12,000

The equipment is being depreciated on a straight-line basis over an estimated life of 15 years with a $10,000 estimated residual value. The annual accounting period ends on December 31.

Required:

1. Give the adjusting entry that was made at the end of 2009 for depreciation on the manufacturing equipment.
2. Starting at the beginning of 2010, what is the remaining estimated life?
3. Give the journal entries to record the two expenditures during 2010.

Determining Financial Statement Effects of Depreciation and Repairs (Straight-Line Depreciation) E8-6 LO2, 3

Refer to the information in E8–5.

Required:
Indicate the effects (accounts, amounts, and + or −) of the following on the accounting equation.

Date	Assets	=	Liabilities	+	Stockholders' Equity

1. The adjustment for depreciation at the end of 2009.
2. The two expenditures during 2010.

Computing Depreciation under Alternative Methods E8-7 LO3

Rita's Pita Company bought a new dough machine at the beginning of the year at a cost of $6,000. The estimated useful life was four years, and the residual value was $1,000. Assume that the estimated productive life of the machine was 9,000 hours. Actual annual usage was 3,600 hours in year 1; 2,700 hours in year 2; 1,800 hours in year 3; and 900 hours in year 4.

Required:
1. Complete a separate depreciation schedule for each of the alternative methods. Round your answers to the nearest dollar.
   a. Straight-line.
   b. Units-of-production (use four decimal places for the per unit output factor).
   c. Double-declining-balance.

Method: _____

Year	Computation	Depreciation Expense	Accumulated Depreciation	Net Book Value
At acquisition				
1				
2				
etc.				

2. Assuming that the machine was used directly in the production of one of the products that the company manufactures and sells, what factors might management consider in selecting a preferable depreciation method in conformity with the matching principle?

Computing Depreciation under Alternative Methods E8-8 LO3

Alexa Plastics Company purchased a new stamping machine at the beginning of the year at a cost of $280,000. The estimated residual value was $30,000. Assume that the estimated useful life was five years, and the estimated productive life of the machine was 250,000 units. Actual annual production was as follows:

Year	Units
1	73,000
2	62,000
3	30,000
4	43,000
5	42,000

Required:
1. Complete a separate depreciation schedule for each of the alternative methods. Round your answers to the nearest dollar.
   a. Straight-line.
   b. Units-of-production.
   c. Double-declining-balance.

Method: _____

Year	Computation	Depreciation Expense	Accumulated Depreciation	Net Book Value
At acquisition				
1				
2				
etc.				

2. Assuming that the machine was used directly in the production of one of the products that the company manufactures and sells, what factors might management consider in selecting a preferable depreciation method in conformity with the matching principle?

E8-9 Explaining Depreciation Policy
LO3
Ford Motor Company

A recent annual report for Ford Motor Company contained the following note:

> **Significant Accounting Policies**
> ***Depreciation and Amortization of Property, Plant, and Equipment***
> Property and equipment are stated at cost and depreciated primarily using the straight-line method over the estimated useful life of the asset. Special tools placed in service before January 1, 1999 are amortized using an accelerated method over the estimated life of those tools. Special tools placed in service beginning in 1999 are amortized using the units-of-production method. Maintenance, repairs, and rearrangement costs are expensed as incurred.

Required:
Why do you think the company changed its depreciation method for special tools acquired in 1999 and subsequent years?

E8-10 Interpreting Management's Choice of Different Depreciation Methods for Tax and Financial Reporting
LO3
FedEx

A recent annual report for Federal Express Corporation includes the following information:

> For financial reporting purposes, depreciation and amortization of property and equipment is provided on a straight-line basis over the asset's service life. For income tax purposes, depreciation is generally computed using accelerated methods.

Required:
Explain why Federal Express uses different methods of depreciation for financial reporting and tax purposes.

E8-11 Computing Depreciation and Book Value for Two Years Using Alternative Depreciation Methods and Interpreting the Impact on Cash Flows
LO3, 7

Daisey Company bought a machine for $66,000 cash. The estimated useful life was four years, and the estimated residual value was $6,000. Assume that the estimated useful life in productive units is 120,000. Units actually produced were 43,000 in year 1 and 45,000 in year 2.

Required:
1. Determine the appropriate amounts to complete the following schedule. Show computations, and round to the nearest dollar.

	Depreciation Expense for		Net Book Value at the End of	
Method of Depreciation	Year 1	Year 2	Year 1	Year 2
Straight-line				
Units-of-production				
Double-declining-balance				

2. Which method would result in the lowest EPS for year 1? For year 2?

3. Which method would result in the highest amount of cash outflows in year 1? Why?
4. Indicate the effects of (*a*) acquiring the machine and (*b*) recording annual depreciation on the operating and investing activities sections of the statement of cash flows (indirect method) for year 1 (assume the straight-line method).

Inferring Asset Impairment and Recording Disposal of an Asset

E8-12
LO4, 5
United Parcel Service Inc.

United Parcel Service states in a recent 10-K report, "We are the world's largest package delivery company and a leading global provider of specialized transportation and logistics services." The following note and data were reported:

> **Note 1—Summary of Accounting Policies**
>
> ***Impairment of Long-Lived Assets***
>
> We review long-lived assets for impairment when circumstances indicate the carrying amount of an asset may not be recoverable based on the undiscounted future cash flows of the asset. . . . In December (of a recent year), we permanently removed from service a number of Boeing 727 and DC-8 aircraft. As a result, we conducted an impairment evaluation, which resulted in. . . .

	Dollars in Millions
Cost of property and equipment (beginning of year)	$25,361
Cost of property and equipment (end of year)	26,915
Capital expenditures during the year	1,947
Accumulated depreciation (beginning of year)	11,749
Accumulated depreciation (end of year)	13,007
Depreciation expense during the year	1,549
Cost of property and equipment sold during the year	318
Accumulated depreciation on property sold	291
Cash received on property sold	118

Required:

1. Reconstruct the journal entry for the disposal of property and equipment during the year.
2. Compute the amount of property and equipment that United Parcel wrote off as impaired during the year. (**Hint:** Set up T-accounts.)

Recording the Disposal of an Asset at Three Different Sale Prices

E8-13
LO5
FedEx

Federal Express is the world's leading express-distribution company. In addition to the world's largest fleet of all-cargo aircraft, the company has more than 669 aircraft and 53,000 vehicles and trailers that pick up and deliver packages. Assume that Federal Express sold a small delivery truck that had been used in the business for three years. The records of the company reflected the following:

Delivery truck cost	$28,000
Accumulated depreciation	23,000

Required:

1. Give the journal entry for the disposal of the truck, assuming that the truck sold for
   a. $5,000 cash
   b. $5,600 cash
   c. $4,600 cash
2. Based on the three preceding situations, explain the effects of the disposal of an asset.

Recording the Disposal of an Asset at Three Different Sale Prices

E8-14
LO5

Trump Entertainment Resorts owns and manages three casino hotel properties, Trump Plaza Hotel and Casino, Trump Taj Mahal Casino Resort, and Trump Marina Hotel Casino, totaling over $1.5 billion in property and equipment. Assume that Trump replaced furniture in one of the hotels that had been used in the business for five years. The records of the company reflected the following regarding the sale of the existing furniture:

Furniture (cost)	$8,000,000
Accumulated depreciation	6,500,000

Required:

1. Give the journal entry for the disposal of the furniture, assuming that it was sold for
   a. $1,500,000 cash.
   b. $2,600,000 cash.
   c. $900,000 cash.
2. Based on the three preceding situations, explain the effects of the disposal of an asset.

E8-15 LO5 Inferring Asset Age and Recording Accidental Loss on a Long-Lived Asset (Straight-Line Depreciation)

On January 1, 2010, the records of Pastuf Corporation showed the following regarding a truck:

Equipment (estimated residual value, $4,000)	$18,000
Accumulated depreciation (straight-line, three years)	6,000

On December 31, 2010, the delivery truck was a total loss as the result of an accident.

Required:

1. Based on the data given, compute the estimated useful life of the truck.
2. Give all journal entries with respect to the truck on December 31, 2010. Show computations.

E8-16 LO6 Freeport-McMoRan Copper & Gold Inc. Computing the Acquisition and Depletion of a Natural Resource

Freeport-McMoRan Copper & Gold Inc. is one of the world's largest copper and gold mining and production companies with the majority of its natural resources in Indonesia. Annual revenues exceed $16 billion. Assume that in February 2011, Freeport-McMoRan paid $700,000 for a mineral deposit in Bali. During March, it spent $65,000 in preparing the deposit for exploitation. It was estimated that 900,000 total cubic yards could be extracted economically. During 2011, 60,000 cubic yards were extracted. During January 2012, the company spent another $6,000 for additional developmental work that increased the estimated productive capacity of the mineral deposit.

Required:

1. Compute the acquisition cost of the deposit in 2011.
2. Compute depletion for 2011.
3. Compute the net book value of the deposit after payment of the January 2012 developmental costs.

E8-17 LO6 Computing and Reporting the Acquisition and Amortization of Three Different Intangible Assets

Katie Company had three intangible assets at the end of 2010 (end of the accounting year):

a. A patent purchased from J. Miller on January 1, 2010, for a cash cost of $6,000. Miller had registered the patent with the U.S. Patent Office five years ago.
b. An internally developed trademark registered with the federal government for $12,000 on November 1, 2010. Management decided the trademark has an indefinite life.
c. Computer software and Web development technology purchased on January 1, 2009, for $65,000. The technology is expected to have a four-year useful life to the company.

Required:

1. Compute the acquisition cost of each intangible asset.
2. Compute the amortization of each intangible at December 31, 2010. The company does not use contra-accounts.
3. Show how these assets and any related expenses should be reported on the balance sheet and income statement for 2010.

E8-18 LO6 Computing and Reporting the Acquisition and Amortization of Three Different Intangible Assets

Cambridge Company had three intangible assets at the end of 2012 (end of the accounting year):

a. A copyright purchased on January 1, 2011 for a cash cost of $12,300. The copyright is expected to have a ten-year useful life to Cambridge.
b. Goodwill of $65,000 from the purchase of the Hartford Company on July 1, 2010.

c. A patent purchased on January 1, 2012 for $39,200 from the inventor who had registered the patent with the U.S. Patent Office on January 1, 2006.

Required:

1. Compute the acquisition cost of each intangible asset.
2. Compute the amortization of each intangible at December 31, 2012. The company does not use contra-accounts.
3. Show how these assets and any related expenses should be reported on the balance sheet and income statement for 2012. (Assume there has been no impairment of goodwill.)

Recording Leasehold Improvements and Related Amortization

E8-19
LO6
Starbucks Corporation

Starbucks Corporation is a rapidly expanding retailer of specialty coffee with thousands of stores worldwide. Assume that Starbucks planned to open a new store on Commonwealth Avenue near Boston University and obtained a 20-year lease starting January 1, 2011. The company had to renovate the facility by installing an elevator costing $275,000. Amounts spent to enhance leased property are capitalized as intangible assets called Leasehold Improvements. The elevator will be amortized over the useful life of the lease.

Required:

1. Give the journal entry to record the installation of the new elevator.
2. Give any adjusting entries required at the end of the annual accounting period on December 31, 2011, related to the new elevator. Show computations.

Finding Financial Information as a Potential Investor

E8-20
LO1, 2, 3, 4, 5, 6, 7

You are considering investing the cash gifts you received for graduation in various stocks. You have received several annual reports of major companies.

Required:

For each of the following, indicate where you would locate the information in an annual report. (**Hint**: The information may be in more than one location.)

1. The detail on major classifications of long-lived assets.
2. The accounting method(s) used for financial reporting purposes.
3. Whether the company has had any capital expenditures for the year.
4. Net amount of property, plant, and equipment.
5. Policies on amortizing intangibles.
6. Depreciation expense.
7. Any significant gains or losses on disposals of fixed assets.
8. Prior year's accumulated depreciation.
9. The amount of assets written off as impaired during the year.

(Supplement) Recording a Change in Estimate

E8-21
LO3

Refer to E8-5.

Required:

Give the adjusting entry that should be made at the end of 2010 for depreciation of the manufacturing equipment, assuming no change in the original estimated life or residual value. Show computations.

(Supplement) Recording and Explaining Depreciation, Extraordinary Repairs, and Changes in Estimated Useful Life and Residual Value (Straight-Line Depreciation)

E8-22
LO2, 3

At the end of the annual accounting period, December 31, 2011, Shafer Company's records reflected the following for Machine A:

Cost when acquired	$30,000
Accumulated depreciation	10,200

During January 2012, the machine was renovated at a cost of $14,000. As a result, the estimated life increased from five years to eight years, and the residual value increased from $4,500 to $6,500. The company uses straight-line depreciation.

Required:

1. Give the journal entry to record the renovation.
2. How old was the machine at the end of 2011?
3. Give the adjusting entry at the end of 2012 to record straight-line depreciation for the year.
4. Explain the rationale for your entries in requirements 1 and 3.

E8-23 (Supplement) Computing the Effect of a Change in Useful Life and Residual Value on Financial Statements and Cash Flows (Straight-Line Depreciation)
LO3, 7

Todd Company owns the building occupied by its administrative office. The office building was reflected in the accounts at the end of last year as follows:

Cost when acquired	$330,000
Accumulated depreciation (based on straight-line depreciation, an estimated life of 30 years, and a $30,000 residual value)	130,000

During January of this year, on the basis of a careful study, management decided that the total estimated useful life should be changed to 25 years (instead of 30) and the residual value reduced to $23,000 (from $30,000). The depreciation method will not change.

Required:

1. Compute the annual depreciation expense prior to the change in estimates.
2. Compute the annual depreciation expense after the change in estimates.
3. What will be the net effect of changing estimates on the balance sheet, net income, and cash flows for the year?

EXERCISES

E8–1.

Hasbro, Inc.
Excerpts from Balance Sheet
(in millions)

ASSETS	
Current Assets	
Cash and cash equivalents	$ 521
Accounts receivable (net of allowance for doubtful accounts, $39)	607
Inventories	169
Prepaid expenses and other current assets	212
Total current assets	1,509
Property, Plant, and Equipment	
Tools, dies and molds	30
Machinery and equipment	304
Buildings and improvements	206
Land and improvements	18
Property, plant, and equipment (at cost)	558
Less: Accumulated depreciation	358
Total property, plant, and equipment (net)	200
Other Assets	
Goodwill	464
Other intangibles (net of accumulated amortization, $435)	711
Other noncurrent assets	280
Total other assets	1,455
Total Assets	$3,164

E8–2.

Req. 1

Fixed asset turnover ratio: (in millions)

Sales ÷ [(beginning net fixed assets + ending net fixed assets) ÷ 2]

2007	2006	2005
$24,006 ÷ $1,556.5	$19,315 ÷ $1,049	$13,931 ÷ $762
15.42	18.41	18.28

Computation of denominator:

2007	($1,832 + 1,281) ÷ 2	= $1,556.5
2006	($1,281 + 817) ÷ 2	= $1,049
2005	($817 + 707) ÷ 2	= $ 762

Req. 2

Apple's fixed asset turnover ratio rose slightly in 2006, then fell to 15.42 in 2007. This suggests that Apple's management became less efficient at utilizing its long-lived assets over time. The decrease in 2007 was due primarily to a large increase in fixed assets that year. Although the turnover has declined, it is possible that the build-up of fixed assets may lead to increased sales in the future, thus increasing the fixed asset turnover ratio to prior levels. An analyst can use this longitudinal analysis to observe possible trends over time. In addition, the analyst may compare Apple's ratios to those of competitors in the industry.

E8–3

Req. 1

Building (+A)	95,000	
Land (+A)	109,000	
Cash (–A)		204,000

	Building	Land
Cash paid	$71,000	$107,000
+ renovations to prepare for use	23,000	
+ share of transfer costs	1,000	2,000
	$95,000	$109,000

Req. 2

Straight-line depreciation computation:
($95,000 cost - $15,000 residual value) x 1/10 years = $8,000 depreciation expense per year
Note: Land is not depreciated.

Req. 3

Computation of the book value of the property at the end of year 2:

Building	$ 95,000	
Less: Accumulated depreciation ($8,000 x 2 years)	(16,000)	$ 79,000
Land		109,000
		$188,000

E8–4.

Req. 1

Date	Assets		Liabilities		Stockholders' Equity	
January 1	No effect		No effect		No effect	
January 2	Cash Equipment	–8,000 +21,000	Short term note payable	+13,000		
January 3	Cash Equipment	–1,000 +1,000				
January 5	Cash Equipment	–1,500 +1,500				
July 1	Cash	–13,650	Short term note payable	–13,000	Interest expense*	–650

* $13,000 principal x .10 interest rate x 6/12 of a year = $650 interest

Req. 2

Acquisition cost of the machine:

Cash paid	$ 8,000
Note payable with supplier	13,000
Freight costs	1,000
Installation costs	1,500
Acquisition cost	$23,500

Req. 3

Depreciation for 2011: ($23,500 cost - $3,500 residual value) x 1/10 years $ 2,000

Req. 4

On July 1, 2011, $650 ($13,000 x 10% x 6/12) is paid and is recorded as interest expense. The amount is not capitalized (added to the cost of the asset) because interest is capitalized only on constructed assets. This machine was purchased.

Req. 5

Equipment (cost)	$23,500
Less: Accumulated depreciation ($2,000 x 2 years)	4,000
Book value at end of 2012	$19,500

E8–5.

Req. 1

Adjusting entry for 2009:

Depreciation expense (+E, –SE)	6,000	
Accumulated depreciation, equipment (+XA, –A)		6,000

($100,000 – $10,000) x 1/15 years = $6,000

Req. 2 (beginning of 2010)

Remaining life: 15 years – ($66,000 ÷ $6,000 = 11 years used) = 4 years remaining

Req. 3 (during 2010):

Repair and maintenance expense (+E, –SE)	1,000	
Cash (–A)		1,000

(Ordinary repairs incurred.)

Equipment (+A)	12,000	
Cash (–A)		12,000

Extraordinary repairs incurred and capitalized.

E8–6.

Date	Assets	Liabilities	Stockholders' Equity
1. 2009*	Accumulated depreciation –6,000		Depreciation expense –6,000
2a. 2010	Cash –1,000		Repair and maintenance expense –1,000
2b. 2010	Cash –12,000 Equipment +12,000		

* Adjusting entry for 2009:

($100,000 cost – $10,000 residual value) x 1/15 years = $6,000.

E8–7.

Req. 1

a. Straight-line:

Year	Computation	Depreciation Expense	Accumulated Depreciation	Net Book Value
At acquisition				$6,000
1	($6,000 - $1,000) x 1/4	$1,250	$1,250	4,750
2	($6,000 - $1,000) x 1/4	1,250	2,500	3,500
3	($6,000 - $1,000) x 1/4	1,250	3,750	2,250
4	($6,000 - $1,000) x 1/4	1,250	5,000	1,000

b. Units-of-production: ($6,000 – $1,000) ÷ 9,000 = $0.5556 per hour of output

Year	Computation	Depreciation Expense	Accumulated Depreciation	Net Book Value
At acquisition				$6,000
1	$0.5556 x 3,600 hours	$2,000	$2,000	4,000
2	$0.5556 x 2,700 hours	1,500	3,500	2,500
3	$0.5556 x 1,800 hours	1,000	4,500	1,500
4	$0.5556 x 900 hours	500	5,000	1,000

E8–7 (continued)

c. Double-declining-balance:

Year	Computation	Depreciation Expense	Accumulated Depreciation	Net Book Value
At acquisition				$6,000
1	($6,000 - $0) x 2/4	$3,000	$3,000	3,000
2	($6,000 - $3,000) x 2/4	1,500	4,500	1,500
3	($6,000 - $4,500) x 2/4	~~750~~	~~5,250~~	~~750~~
		500	5,000	1,000
4		0	0	0

Too large. Net book value cannot be below residual value.

Req. 2

If the machine is used evenly throughout its life and its efficiency (economic value in use) is expected to decline steadily each period over its life, then straight-line depreciation would be preferable. If the machine is used at a consistent rate but the efficiency is expected to decline faster in the earlier years of its useful life, then an accelerated method would be appropriate [such as, double-declining-balance]. If the machine is used at different rates over its useful life and its efficiency declines with output, then the units-of-production method would be preferable because it would result in a better matching of depreciation expense with revenue earned.

For income tax purposes, accelerated methods may be advantageous, because an earlier tax deduction is preferable to a later tax deduction because of the time value of money. However, the accelerated methods may not satisfy the matching principle.

E8–8.

Req. 1

a. Straight-line:

Year	Computation	Depreciation Expense	Accumulated Depreciation	Net Book Value
At acquisition				$280,000
1	($280,000 - $30,000) x 1/5	$50,000	$50,000	230,000
2	($280,000 - $30,000) x 1/5	50,000	100,000	180,000
3	($280,000 - $30,000) x 1/5	50,000	150,000	130,000
4	($280,000 - $30,000) x 1/5	50,000	200,000	80,000
5	($280,000 - $30,000) x 1/5	50,000	250,000	30,000

b. Units-of-production: ($280,000 – $30,000) ÷ 250,000 = $1.00 per unit of output

Year	Computation	Depreciation Expense	Accumulated Depreciation	Net Book Value
At acquisition				$280,000
1	$1.00 x 73,000 units	$73,000	$73,000	207,000
2	$1.00 x 62,000 units	62,000	135,000	145,000
3	$1.00 x 30,000 units	30,000	165,000	115,000
4	$1.00 x 43,000 units	43,000	208,000	72,000
5	$1.00 x 42,000 units	42,000	250,000	30,000

E8–8. (continued)

c. Double-declining-balance:

Year	Computation	Depreciation Expense	Accumulated Depreciation	Net Book Value
At acquisition				$280,000
1	($280,000 - 0) x 2/5	$112,000	$112,000	168,000
2	($280,000 - 112,000) x 2/5	67,200	179,200	100,800
3	($280,000 - 179,200) x 2/5	40,320	219,520	60,480
4	($280,000 - 219,520) x 2/5	24,192	243,712	36,288
5	($280,000 - 243,712) x 2/5	~~14,515~~	~~258,227~~	~~21,773~~
		6,288	250,000	30,000

Too large. Net book value cannot be below residual value.

Req. 2

If the machine is used evenly throughout its life and its efficiency (economic value in use) is expected to decline steadily each period over its life, then straight-line depreciation would be preferable. If the machine is used at a consistent rate but the efficiency is expected to decline faster in the earlier years of its useful life, then an accelerated method would be appropriate [such as, double-declining-balance]. If the machine is used at different rates over its useful life and its efficiency declines with output, then the units-of-production method would be preferable because it would result in a better matching of depreciation expense with revenue earned.

For income tax purposes, accelerated methods may be advantageous, because an earlier tax deduction is preferable to a later tax deduction because of the time value of money. However, the accelerated methods may not satisfy the matching principle.

E8–9.

Management of Ford Motor Company probably anticipated that the pre-1999 tools would be more productive or efficient in the earlier part of their lives than in the later. Thus, the accelerated method would provide the best matching of expenses with revenues in the same period. In 1999, however, Ford's management may have recognized a change in the technology of the special tools such that a better matching would occur using the units-of-production method in which the amount of the depreciation expense that would be computed varies by actual production levels each period.

E8–10.

Straight-line depreciation (SL) is a simple method to use and understand. Managers often prefer SL because it results in lower depreciation expense and higher net income in the earlier years of an asset's life when compared with the accelerated methods. Because SL depreciation results in higher income, it is not desirable to use it for tax reporting purposes with the objective of lowering tax liabilities. By using SL depreciation instead of an accelerated method in the earlier years for tax purposes, a company would have to pay higher taxes. In any case, the tax code specifies that MACRS, an accelerated method, must be used for most tangible depreciable property placed in service after December 31, 1986. It is important to note, however, that, over the entire useful life of an asset, total depreciation expense is the same regardless of the method.

E8–11.

Req. 1

	Depreciation Expense		*Book Value at End of*	
Method of Depreciation	*Year 1*	*Year 2*	*Year 1*	*Year 2*
Straight-line	$15,000	$15,000	$51,000	$36,000
Units-of-production	21,500	22,500	44,500	22,000
Double-declining-balance.....	33,000	16,500	33,000	16,500

Computations:

Amount to be depreciated: $66,000 – $6,000 = $60,000:

Straight-line: $60,000 ÷ 4 years = $15,000 per year

Units-of-production: $60,000 ÷ 120,000 units = $.50 per unit

Year 1: 43,000 x $.50 = $21,500

Year 2: 45,000 x $.50 = $22,500

Double-declining-balance (Rate: 2 x the straight line rate of 25% (2/4) = 50%):

Year 1: $66,000 x 50% = $33,000

Year 2: ($66,000 – $33,000) x 50% = $16,500

Req. 2

The double-declining balance method would result in the lowest EPS for Year 1 because it produced the highest depreciation expense and therefore the lowest income (from Requirement 1). In Year 2, the units-of-production method would result in the lowest EPS because it produced the highest depreciation expense and therefore the lowest income in that year.

Req. 3

Depreciation is a noncash expense; that is, no cash is paid when depreciation is recognized. Ignoring income tax implications, all methods have the same impact on cash flows in year 1. Assuming a method is applied for tax determination, the straight-line method will result in the lowest expense, highest net income, highest tax liability, and therefore the highest amount of cash outflows in year 1. Companies will select methods for tax purposes that reduce tax obligations.

Req. 4

The machine acquisition would decrease cash provided by investing activities by the purchase cost of $66,000. As a noncash expense, the annual depreciation should have no overall effect on cash provided by operating activities—however, because it is originally subtracted to arrive at net income, an adjustment needs to be made to reverse this effect for cash flows. Hence, $15,000 (the annual straight-line depreciation) must be added back to net income in the operating section of the statement of cash flows.

E8–12.

Req. 1

Property, Plant, and Equipment

Beg. Bal	25,361	318	Property sold
Capital expenditures	1,947	75	Write-offs
End. Bal.	26,915		

Accumulated Depreciation

Property sold	291	11,749	Beg. bal.
		1,549	Depreciation expense
		13,007	End. bal.

Disposal of property and equipment:

Cash (+A)	118	
Accumulated depreciation (–XA, +A)	291	
Property and equipment (–A)		318
Gain on sale of property and equipment (+Gain, +SE)		91

Req. 2

Amount of property and equipment written off as impaired during the year:

Beginning balance	$25,361
+ Capital expenditures during year	1,947
- Cost of property sold during year	(318)
- Impairment loss during year	(?)
Ending balance	$26,915

Impairment loss = $75

E8–13.

Req. 1a

Cash (+A)	5,000	
Accumulated depreciation (–XA, +A)	23,000	
Delivery truck (–A)		28,000

Sale of an asset at book value; the result is no loss or gain.

Req. 1b

Cash (+A)	5,600	
Accumulated depreciation (–XA, +A)	23,000	
Gain on sale of long-lived asset (+Gain, +SE)		600
Delivery truck (–A)		28,000

Sale of an asset above book value; the result is a gain.

Req. 1c

Cash (+A)	4,600	
Accumulated depreciation (–XA, +A)	23,000	
Loss on sale of long-lived asset (+Loss, –SE)	400	
Delivery truck (–A)		28,000

Sale of an asset below book value; the result is a loss.

Req. 2 Summarization of the effects of the disposal:

1. The loss or gain on disposal of a long-lived asset is the difference between the disposal price and the book value at date of disposal.
2. When the disposal price is the same as the book value there is no loss or gain; when the price is above book value there is a gain; and when the price is below book value, there is a loss on disposal.
3. The book value does not purport to be market value, so a loss or gain on disposal of a long-lived asset normally would occur.

E8–14.

Req. 1a

Cash (+A)	1,500,000	
Accumulated depreciation (–XA, +A)	6,500,000	
Furniture (–A)		8,000,000

Sale of an asset at book value; the result is no loss or gain.

Req. 1b

Cash (+A)	2,600,000	
Accumulated depreciation (–XA, +A)	6,500,000	
Gain on sale of long-lived asset (+Gain, +SE)		1,100,000
Furniture (–A)		8,000,000

Sale of an asset above book value; the result is a gain.

Req. 1c

Cash (+A)	900,000	
Accumulated depreciation (–XA, +A)	6,500,000	
Loss on sale of long-lived asset (+Loss, –SE)	600,000	
Furniture (–A)		8,000,000

Sale of an asset below book value; the result is a loss.

Req. 2 Summarization of the effects of the disposal:

1. The loss or gain on disposal of a long-lived asset is the difference between the disposal price and the book value at date of disposal.
2. When the disposal price is the same as the book value there is no loss or gain; when the price is above book value there is a gain; and when the price is below book value, there is a loss on disposal.
3. The book value does not purport to be market value, so a loss or gain on disposal of a long-lived asset normally would occur.

E8–15.

Req. 1

Depreciation expense per year:

$6,000 accumulated depreciation ÷ 3 years of usage = $2,000 per year

Estimated useful life:

($18,000 – $4,000) x 1/? useful life = $2,000 per year

$14,000 / $2,000 = 7 year useful life

Req. 2

December 31, 2010:

Depreciation expense (+E, –SE)	2,000	
Accumulated depreciation (+XA, –A)		2,000

To bring accumulated depreciation up to the date of the accidental loss ($18,000 – $4,000) x 1/7 years = $2,000.

Accumulated depreciation ($6,000 + $2,000) (–XA, +A)	8,000	
Loss on disposal of truck (+Loss, –SE)	10,000	
Truck (–A)		18,000

To record disposal of wrecked truck.

E8–16.

Req. 1

Computation of acquisition cost of the deposit in 2011:

February 2011:	Purchase of mineral deposit	$ 700,000
March 2011:	Preparation costs	65,000
	Total acquisition cost in 2011	$ 765,000

Req. 2

Computation of depletion for 2011:

$765,000 cost ÷ 900,000 cubic yards = $.85 per cubic yard depletion rate
60,000 cubic yards in 2011 x $.85 = $51,000

Req. 3

Computation of net book value of the deposit after the developmental work:

Total acquisition cost in 2011		$ 765,000
Less: 2011 depletion		(51,000)
January 2012 developmental costs		6,000
	Net book value	$ 720,000

E8–17.

Req. 1

Acquisition cost:

Patent	$ 6,000
Trademark	12,000
Technology	65,000

Req. 2

Amortization on December 31, 2010 (straight-line method with no residual value):

Patent: $6,000 x 1/15 years remaining = $400 amortization expense

Trademark: The trademark is not amortized due to its indefinite life.

Technology: $65,000 x 1/4 years = $16,250 amortization expense

Req. 3

Income statement for 2010:

Operating expenses:

Amortization expense ($400 + $16,250)		$16,650

Balance sheet at December 31, 2010:

(*under noncurrent assets*)

Intangibles:

Patent ($6,000 - $400)	$ 5,600	
Trademark	12,000 **	
Technology ($65,000 - $32,500*)	32,500	$50,100

* $16,250 amortization expense x 2 years

** Although trademarks are valuable assets, they are rarely seen on balance sheets.

E8–18.

Req. 1

Acquisition cost:

Copyright	$12,300
Goodwill	65,000
Patent	39,200

Req. 2

Amortization on December 31, 2012 (straight-line method with no residual value):

Copyright: $12,300 x 1/10 years = $1,230 amortization expense
Goodwill: The goodwill is not amortized due to its indefinite life.
Patent: $39,200 x 1/14 years remaining = $2,800 amortization expense

Req. 3

Income statement for 2012:

Operating expenses:

Amortization expense ($1,230 + $2,800)	$4,030

Balance sheet at December 31, 2012:

(*under noncurrent assets*)

Intangibles:

Copyright ($12,300 - $2,460*)	$ 9,840	
Goodwill	65,000	
Patent ($39,200 - $2,800)	36,400	$111,240

* $1,230 amortization expense x 2 years

E8–19.

Req. 1 (January 1, 2011):

Leasehold improvements (+A)	275,000	
Cash (–A)		275,000

Req. 2 (Adjusting entry on December 31, 2011):

Depreciation (or amortization) expense* (+E, –SE)	13,750	
Leasehold improvements (–A)		13,750

($275,000 x 1/20 year lease = $13,750)

* Some accountants prefer to label this Rent Expense or Amortization of Leasehold Improvements. The cost of the improvement should be allocated over the shorter of the life of the improvement or the lease term.

E8–20.

	Item		Location
1.	The detail on major classifications of long-lived assets.	(a)	Balance sheet, or
		(b)	Notes to the financial statements
2.	The accounting method(s) used for financial reporting purposes.		Notes to the financial statements
3.	Whether the company has had any capital expenditures for the year.	(a)	Statement of cash flows
		(b)	Increase in assets on the balance sheet
		(c)	Notes to the financial statements
4.	Net amount of property, plant, and equipment.	(a)	Balance sheet, or
		(b)	Notes to the financial statements
5.	Policies on amortizing intangibles.		Notes to the financial statements
6.	Depreciation expense.	(a)	Income statement, or
		(b)	Statement of cash flows, or
		(c)	Notes to the financial statements
7.	Any significant gains or losses on disposals of fixed assets.	(a)	Income statement, or
		(b)	Statement of cash flows, or
		(c)	Note to the financial statements
8.	Prior year's accumulated depreciation.	(a)	Balance sheet, or
		(b)	Notes to the financial statements
9.	The amount of assets written off as impaired during the year.	(a)	Income statement, or
		(b)	Statement of cash flows, or
		(c)	Notes to the financial statements

E8–21.

December 31, 2010:
Adjusting entry for 2010 depreciation:

Depreciation expense (+E, –SE).....	9,000	
Accumulated depreciation, equipment (+XA, –A)		9,000

Depreciation 2010:
($46,000 net book value - $10,000 residual value) x 1/4 years = $9,000

Net book value computation:

$100,000	original cost
12,000	capitalized overhaul
(66,000)	accumulated depreciation through 2009
$ 46,000	net book value on January 1, 2010

Remaining life computation:

15	years estimated life
– 11	years used
4	years remaining

($66,000 accumulated depreciation ÷ $6,000 expense)

E8–22.
Req. 1

Equipment (+A)	14,000	
Cash (–A)		14,000

Req. 2
Age of Machine A at December 31, 2011:
($30,000 cost – $4,500 residual value) x 1/5 years = $5,100 depreciation per year.
$10,200 accumulated depreciation ÷ $5,100 = 2 years old at December 31, 2011.

Req. 3

Depreciation expense (for 2012) (+E, –SE).....	4,550	
Accumulated depreciation, machinery (+XA, –A).....		4,550

Computations:

Cost when acquired.....	$30,000
Less: Accumulated depreciation (2 years)	10,200
Undepreciated balance.....	19,800
Add: Major renovation cost.....	14,000
Total	$33,800

Annual depreciation:
($33,800 cost - $6,500 new residual value) x 1/6 years of remaining useful life (8 years total useful life – 2 years used) = $4,550

Req. 4
Requirement (1) assumed that the major renovation and improvement cost was a capital expenditure rather than a revenue expenditure. Because capital expenditures benefit future periods, the expenditure is added to the book value of the asset and then is depreciated over the remaining life of the asset.
Requirement (3) recognized an accounting change due to a change in estimate (both estimated life and residual value). A change in estimate is not an error correction; consequently it is treated prospectively. That is, the effect is spread over the current year and the future remaining life of the asset. This approach means that the undepreciated balance at the date of the change in estimate is depreciated over the remaining life using the revised estimates.

E8–23.
Req. 1
Depreciation expense prior to the change in estimates:
($330,000 cost – $30,000 residual value) x 1/30 years = $10,000 annual depreciation

Req. 2
Depreciation expense after the change in estimates:

Step 1 – Age of the asset: $130,000 ÷ $10,000 = 13 years of depreciation to date.
The building has been depreciated over 13 years as of the beginning of the year.

Step 2 – Net book value: $330,000 cost – $130,000 accum. deprec. = $200,000

Step 3 – Computation:
(Net book value – new residual value) x 1/remaining life = Depreciation expense
($200,000 – $23,000) x 1/12 years = $14,750 depreciation expense per year
This was an accounting change due to a change in estimate (both remaining useful life and residual value). A change in estimate is not an error correction; the remaining book value is depreciated over the remaining useful life using the revised estimates.

Req. 3
The depreciation expense increases by $4,750 each year for the next 12 years. Therefore, net income will be lower by $4,750 (ignoring taxes) each year; this in turn will lower Retained Earnings on the balance sheet. Also on the balance sheet, the asset's net book value will be lowered by an additional $4,750 each year for 12 years. However, since depreciation is a noncash expense, there are no cash flow implications (again ignoring income tax considerations).